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THE PROBLEM OF DELAY IN THE FIRST STAGE OF LABOUR

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Abnormal labour characterized by delay in the dilatation of the cervix constitutes one of the most difficult and worrying problems in obstetrics and it requires much care and patience on the part of the practitioner conducting the case, to ensure a successful result. Although labour lasting more than 48 hours is usually defined as prolonged labour, there is no doubt that the danger to both mother and foetus tends to increase after 24 hours. After 48 hours these dangers increase rapidly.

Dystocia of the first stage is usually ascribed to faults in the powers, the pelvis and the foetus. It is important to remember, however, that in most cases there is a combination of factors. A well-known example of such a combination of factors is the common co-existence of uterine inertia and the occipito-posterior position of the head. Whatever the underlying cause may be, the final result is a failure on the part of the powers to terminate the first stage successfully.

UTERINE INERTIA

The classification of inertia into primary and secondary has, in the past, tended to lead to some confusion owing to the different interpretations placed on these terms by various authorities. In this paper these terms have been abandoned in favour of inertia in the first and second stages of labour.

Inertia in the First Stage of Labour

Abnormal uterine action during this stage may be divided into: (1) Hypotonic uterine inertia, and (2) Incoordinate uterine action.

1. *Hypotonic uterine inertia.* This type of inertia is uncommon, and is characterized by contractions that are weak and of short duration. The contractions are irregular in time and the intervals between them are prolonged. This unsatisfactory state of affairs may persist for days, but providing the membranes are intact and that no complicating factor, such as cephalo-pelvic disproportion, is present, the labour may be allowed to continue without the mother and foetus being unduly exposed to harm.

2. *Incoordinate uterine action* (reversed polarity; colicky uterus). In the normal first stage of labour a uterine contraction is initiated in the fundus, and a wave passes down towards the lower segment. At the same time the cervix is 'taken up' and the os dilated. This is termed 'uterine polarity'.

In incoordinate action this normal mechanism fails and, despite contractions, the lower segment and cervix remain in a state of spasm and the cervix fails to dilate. This type is sometimes called hypertonic inertia as opposed to the hypotonic variety. It is, however, doubtful whether an increased intra-uterine pressure is present in these cases. The contractions are irregular in strength, time and duration, and the amount of pain which the patient complains of is often out of all proportion to the degree of the contraction. The pain, which tends to precede the onset of the contraction, persists for some time after the contraction has ceased, and at the same time, the patient complains bitterly of persistent pain in the sacral region of the back. Vaginal examination may show that the cervix is thick, only partially dilated and not well-applied to the presenting part. Even in the absence of disproportion the presenting part may remain high as a result of spasm of the lower uterine segment.

Factors which Tend to Influence the Progress of the First Stage of Labour

1. *Mechanical factors.* The occipito-posterior position is probably the commonest factor associated with uterine inertia and this malposition should be considered and excluded if labour commences in an unsatisfactory manner.

When the duration of pregnancy has been prolonged beyond the estimated date of delivery, labour, when it commences, is apt to be prolonged. Here, too, an occipito-posterior position of the head is commonly a complicating factor.

In other cases cephalo-pelvic disproportion and malpresentations may be associated. Brow and face presentations are usually secondary phenomena that develop subsequent to the onset of labour. The underlying cause of the inertia in these cases is possibly the result of the presenting part being unable to exert pressure on the cervix and thereby interfering with the reflex stimulation of the upper segment.

The 'dystrophia dystocia syndrome' is sometimes encountered in primigravidae who belong to an interesting physical type. These patients are usually short and stocky. There is a thick deposit of fat around the pelvis and they have a male distribution of the pubic hair. The menstrual history is usually typical—the menarche is late, and menstruation, when it does occur, is accompanied by severe primary dysmenorrhoea. The patient is relatively infertile and has an android type of pelvis. If the patient falls pregnant the labour is prolonged, unsatisfactory, and frequently complicated by an occipito-posterior position of the head.

2. *Premature rupture of the membranes.* It is now accepted that premature rupture of the membranes is a result, and not the cause of prolonged labour. The fact that the membranes have ruptured does not adversely affect the course of the labour. On the contrary, intact membranes in the absence of other complicating factors may well delay the first stage and timely artificial rupture can rapidly improve the course.

3. *Parity.* The majority of cases of uterine inertia occur in primigravidae and it should be noted that a recurrence of the dystocia is unlikely in subsequent pregnancies. The incidence of prolonged labour tends to be higher in elderly primigravidae.

Inertia of a severe type may also complicate labour in multigravidae who have had a number of children in rapid succession, and who show evidence of marked uterine obliquity or pendulosity of the abdomen.

4. *Cervical dystocia.* Occasionally the cervix itself may be at fault and remain undilated despite normal uterine action. The term 'rigid cervix' has been given to the type where, despite being well applied, a hard undilated rim of cervix is present at the external os. This condition is rare, occurs in primigravidae and does not tend to recur in subsequent pregnancies. Slow dilatation of the cervix may also occur in cases where previous operations, such as amputation, have been performed or where the cervix is the seat of a chronic infection. Carcinoma of the cervix is another cause of non-dilatation. The anterior lip of the cervix may become compressed between the presenting part and the symphysis pubis during labour, and dystocia may result from the development of swelling of the anterior lip.

An interesting, though rare, complication is known as 'atresia' of the cervix (conglutination of the external os). Here the external os remains closed although the cervix is well taken up. On examination the thinned external os may be represented by a small dimple, or it may even be completely absent in which case the cervix is felt as a thin membrane over the presenting part. Where a dimple is present gentle pressure on it will result in its perforation. If no external os is apparent, a small cruciate incision may be made over the approximate site of the external os. In either case rapid dilatation usually follows.

5. *Constriction-ring dystocia.* Both types of uterine inertia may be complicated during the first stage by the formation of a constriction ring, but whether this is a cause or result of the inertia is not known. Localized annular spasm of the uterus occurs; and although the spasm may develop anywhere above the level of the internal os, in practice it is commonly found at the junction of the upper and lower segments, i.e. at the level of Bandl's ring or the retraction ring.

6. *Over-distension of the uterus.* Contrary to previous statements, cases of over-distension of the uterus resulting from multiple pregnancy or hydramnios and uterine fibroids, are rarely followed by dystocia in the first stages of labour. Emotional factors have also been overrated as a cause.

THE SYMPTOMS AND SIGNS OF PROLONGED LABOUR

1. *Maternal*

During the first 24 hours the unsatisfactory state of the labour may have little effect on the patient's general condition. However, as the hours pass she tends to become worried and anxious, and later restless and distressed. Pain, which may not be significant in the hypotonic type of inertia, sometimes becomes extremely severe and prolonged in the presence of incoordinate action. Backache is intense, and the pain may also be referred to the rectum. This will tend to produce a desire to bear down despite the fact that the cervix is not fully dilated. Bearing down at this stage must be resisted rigorously because it will increase the oedema of the cervix and add to the difficulties of labour. Later, a rising pulse and temperature will appear and intractable vomiting may develop. Difficulty in emptying the bladder is experienced and the bowel becomes distended. Ketosis with acetone-urea develops. In neglected cases the exhaustion and dehydration become more aggravated and a rising Bandl's ring may indicate the approach of rupture of the uterus.

On vaginal examination the presenting part may be found to be high with the cervix partially dilated and ill-applied to the presenting part. In these cases it is common to find a thick cervix hanging down into the vagina. The membranes usually rupture early and a caput succedaneum may be evident. The vagina in the later stages becomes hot and dry and oedema of the vulva may be present.

2. *Foetal*

A careful watch should be kept on the foetal heart. Although the foetus is reasonably safe while the membranes are intact, there are exceptions to this rule, and marked distress may develop before rupture takes place. A rising foetal heart rate up to 160 or 180 per minute is significant because it is an early indication of foetal distress and because it usually precedes the ominous slowing of the rate. The development of irregular rhythm and strength is also of grave import. The presence of meconium is a further sign of distress. Apart from the foetal risks inherent in the prolonged labour an added complication may be sudden foetal death resulting from prolapse of the cord.

THE MANAGEMENT OF PROLONGED LABOUR

1. *The Value of Antenatal Care*

A factor of major importance in antenatal care is the correct doctor-patient relationship. A mutual feeling of confidence is essential. With adequate antenatal care the patient should be free of all fear of the impending labour and she should be taught to approach it in a spirit of pleasant anticipation. The value of relaxation as an adjunct to this approach is fully appreciated.

Many of the complications leading to prolongation of the first stage can be diagnosed and dealt with before labour occurs. It is obvious, however, that factors such as uterine inertia cannot be anticipated and these will have to be dealt with as they arise.

Where disproportion is suspected, a careful pelvic assessment should be made at about the 36th week in an attempt to determine whether any diminution in the pelvic capacity exists. At the time of writing this paper pelvic radiology is suspect on account of the possible dangers to the foetus. It is therefore better to avoid radiological examinations until the matter has been clarified. Suspected hydrocephaly is, however, an exception—the value of a correct diagnosis here outweighs any possible disadvantages.

2. *Management of a Case of Abnormal Labour*

It is essential that all cases showing evidence of an abnormal onset of labour should be managed in an adequately

equipped maternity hospital. Constant attention is necessary and all facilities should be available for dealing with any sudden emergency. While the majority of cases will proceed to a successful conclusion, a small percentage will require operative interference, and it is only by careful observation that these cases can be properly assessed.

The fundamental points in the management of abnormal labour are: (1) Freedom from worry, (2) freedom from pain, (3) adequate sleep, and (4) adequate nourishment. The drug of choice used to achieve freedom from worry and pain and adequate sleep is still morphine, although lately pethedine in doses up to 200 mg. has been extensively used. The possible depressant effects of these drugs on the foetus can now be counteracted by the use of Lethedrone (Burroughs Wellcome and Co.). This is a specific antagonist to morphine, pethedine and similar drugs, and it is either given as an injection of 10 mg. to the mother shortly before delivery, or to the infant (0·5-1 mg.) after birth.

Glucose is of value in providing nourishment and in combating the acidosis which may develop. The oral route is better avoided, however, because glucose, if inhaled into the air passages, is an irritant. The danger of inhalation of glucose must be considered as a definite possibility owing to the common tendency of these patients to vomit. A 10%-glucose infusion given intravenously is the method of choice.

3. *The Use of the 'Pitocin Drip'*

In an attempt to improve the uterine contractions the pitocin drip may be tried. The use of the oxytocic, however, requires careful management and should only be used where the patient is in a hospital and under constant medical supervision. The '2-bottle technique', where glucose is first run into the vein, is advised because in this method there is no danger of an excessive amount of pitocin being administered at the commencement of the treatment.

Most authorities agree that cases treated by the pitocin-drip method should be carefully selected, and the most suitable type of case is one of hypotonic inertia where no evidence of disproportion or mechanical obstruction to delivery is present. It is usually conceded that pitocin is contra-indicated where incoordinate action is present, since it may initiate tetanic contractions of the uterus leading to the death of the foetus and possible rupture of the uterus.

It is of interest to mention that Theobald and Muirhead[1] disagree with the opinion expressed here. They maintain that, provided the primary drip does not exceed a concentration of more than 1 in 5,000, and that no untoward alterations occur in the rhythm or rate of the foetal heart during the first half hour, pitocin can be used in all types of prolonged labour during the first stage. Their routine is to commence the drip with a concentration of 1 in 10,000 and on no occasion do they exceed 1 in 2,500. In addition to the pitocin drip they rely on early low rupture of the membranes and heavy sedation. They claim that this triple form of treatment reduces the incidence of Caesarean section to the minimum.

While the membranes remain intact the patient and foetus are reasonably safe. Nevertheless, a careful watch should be kept on the foetal heart. Once the membranes have ruptured both the maternal and foetal dangers increase the longer the labour lasts.

The main object in uterine inertia is to encourage full dilatation of the cervix so that a spontaneous delivery can occur. Alternatively, the second stage can be completed by using forceps to extract the foetus.

In a small percentage of cases, where the cervix remains undilated, or where evidence of threatened maternal or foetal distress is developing, the labour should be terminated by means of a lower-uterine-segment Caesarean section. Attempts at vaginal delivery before full dilatation should be discouraged.

4. *Vaginal Examination during Labour*

The only satisfactory way of determining the cause of an abnormal onset of labour is by a vaginal examination. Owing to the potential danger from infection, however, this should be done with strict aseptic precautions. This examination affords an opportunity of determining the presentation of the foetus and ascertaining whether or not the cervix is well applied to the presenting part. The thickness and amount of dilatation of the cervix should be noted, and an attempt made to feel whether the cord is presenting or not. A second vaginal examination should be made after 12 hours or following rupture of the membranes. A malpresentation not previously diagnosed may be apparent at this stage. Further vaginal examinations should not be neglected if they are considered necessary. The rectal examination, to my mind, is unsatisfactory, and can be dangerous because it may give misleading information.

The Prognosis

An obvious question that the mother will ask (and she is usually a primipara) is: Am I going to have the same difficulty during subsequent pregnancies? If the delivery has terminated naturally or by the aid of forceps the chances of a normal delivery in the next pregnancy are good. Where a Caesarean section has had to be performed the future prognosis should be more guarded, but even here more than 50% of cases have a good chance of a vaginal delivery in a subsequent pregnancy.

REFERENCE

1. Theobald, G. W. and Muirhead, J. M. B. (1956): J. Obstet. Gynæc. Brit. Emp., 63, 641.

ECTOPIC PREGNANCY IN A TUBE INFESTED WITH BILHARZIA

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In his informative book *Bantu Gynaecology* Charlewood[1] states: 'Only three cases have been reported of ectopic pregnancy in association with bilharzial salpingitis (Gibson[2] 1925, Gilbert[3] 1943), and the evidence presented in these cases is far from conclusive.'

The following case is presented because the finding of an ectopic pregnancy in a tube infested with bilharzia was substantiated by histological examination.

Case Report

An Indian female aged 27 years was admitted to hospital on 22 October 1956. She has 4 children—all were normal pregnancies delivered at term. The last pregnancy was in 1953. Apart from

an occasional delay of 7-9 days, her menses were regular and lasted 5-6 days. Preceding her admission to hospital her menses had been regular and normal. The last menstrual period was from 2-7 October. On 22 October she was well till 4 p.m. when she experienced severe lower abdominal pain, which she described as labour-like. She described something bursting suprapubically. At 6 p.m. pain prevented her from walking and she experienced difficulty in passing urine. There were no symptoms of pregnancy.

On examination she appeared to be in severe pain which was aggravated by movement. The findings on examination were as follows: Pulse rate 100 per minute. Temperature 98°F. Blood pressure 120/60 mm. Hg. The patient appeared anaemic. The abdomen was tense and distended and the subumbilical portion was very tender. As the patient was obese the fluid thrill could not be relied upon.

On vaginal examination a normal parous cervix was found. The uterus could not be defined owing to acute pain.

A diagnosis of ruptured ectopic pregnancy was made. At operation 2 pints of fresh blood were removed from the peritoneal cavity. A ruptured ectopic pregnancy in the right tube, was found. Small whitish tubercles, the size of pinheads, were scattered over both tubes, and these tubercles appeared to be in the serosal layer. Tuberculosis was suspected and the specimen was sent for histological examination. The histological report reads as follows: 'Part of tube shows haemorrhage and placental villi. A few fibrotic nodules with calcifying bilharzial ova are present in the subserous layer of the tube.' (Figs. 1 and 2.)

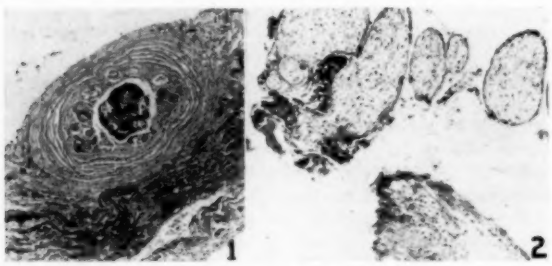

Fig. 1. Fallopian tube showing a solitary bilharzial granuloma.
Fig. 2. The associated extra-uterine pregnancy in the tube shown in Fig. 1.

Distribution of Bilharzia

According to Monnig[4] the *Schistosoma haematobium* is found in the whole of Africa with the exception of two large areas corresponding roughly to the Sahara and Kalahari deserts. The parasite has a terminal-spined, elongated oval egg which is, as a rule, passed in the urine, but sometimes also in the stool. In the Union of South Africa the intermediate host is the *Physopsis africana*. *S. mansoni* occurs in parts of Africa; this parasite has oval, lateral-spined eggs which are passed in the stool and is rarely found in South Africa.

Pathology of Bilharzial Salpingitis

The main pathological feature is the deposit of ova in the tube and the formation of tubercles around them. The end result is fibrosis. The bilharzial tubercles are the size of sago-grains and are white in colour. There is some difference between the lesions caused by *S. haematobium* and *S. mansoni* as regards the tube. Charlewood and associates[5] stated that in their series the tubal lesions were found almost exclusively in the wall of the tube without affecting the mucosa. This produced thickening of the wall and some narrowing of the lumen without occlusion.

Thus fertilization of an ovum is not prevented, but progression of the inseminated ovum may be impeded resulting in an ectopic pregnancy.

In Arean's[6] cases of *S. mansoni* infestation, by contrast, most severe lesions were found in the mucosa and to a lesser extent in the wall. The mucosa in some cases was so extensively replaced by granulomas that no traces of the mucosal linings were left. This led to segmental occlusion of the lumen and dilatation of the distal segments which contained inspissated material made of cellular debris, cholesterol crystals and round-cell infiltration.

Symptoms and Signs of Bilharzial Salpingitis

The history usually is that of pains in the lower abdomen in a woman who has bathed in infected rivers. In the less severe cases the pain is indistinguishable from that of ordinary salpingitis. The pains, although of long duration and varying intensity, may commence suddenly and simulate an acute abdomen. Menses are usually unaffected. On pelvic examination it is unusual to find departure from the normal because in the Union of South Africa we are mostly dealing with a *S. haematobium* infection. Occasionally a thickened tube may be identified. Gelfand[7,8] stresses the difficulty in making a correct diagnosis. A history of having lived in an infected area, the finding of ova in the urine or stool, eosinophilia, cystoscopy, bilharzial complement-fixation test and rectal biopsy help in the diagnosis. It is helpful to remember that a vigorous massage of the bladder during a pelvic examination may liberate ova in the urine which otherwise may be free of ova. It is surprising that whilst the *S. haematobium* affects the mucosa of the bladder and rectum, the mucous membrane of the tube escapes.

Treatment

A course of sodium antimony gluconate (Triostam), containing 30% trivalent antimony—225 mg. dissolved in 3·5 c.c. water and injected slowly I.V. daily for 6 days—should be given. This is used in preference to antimony tartrate since side-effects are less frequent. Vomiting and paroxysms of coughing do not occur.

It is important to submit all operative specimens, which appear suspicious, for histological examination. Tubes which have tubercles scattered on their serosal surfaces should not be removed. Gelfand[7] reports a case of a female aged 24 who had a grossly distorted bilharzial tube removed. At operation the other tube was found to have a few tubercles on the serous surface, but otherwise appeared normal. A course of antimony was prescribed. Two years later she was pregnant. The antimony had prevented loss of function of the remaining tube.

SUMMARY

A case of ectopic pregnancy in a bilharzial-infested tube is presented. The pathology and diagnosis are discussed with a review of the literature.

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REFERENCES

1. Charlewood, G. P. (1956): *Bantu Gynaecology*, 1st ed., p. 43. Johannesburg: Witwatersrand University Press.
2. Gibson, R. W. B. (1925): S. Afr. Med. J., **21**, 44.
3. Gilbert, B. (1943): J. Obstet. Gynaec. Brit. Emp., **50**, 317.
4. Monnig, H. O. (1934): S. Afr. Med. J., **8**, 319.
5. Charlewood, G. P., Shippel, S. and Renton, H. (1949): J. Obstet. Gynaec. Brit. Emp., **56**, 367.
6. Arean, V. M. (1956): Amer. J. Obstet. Gynec., **72**, 1039.
7. Gelfand, M. (1941): S. Afr. Med. J., **15**, 69.
8. *Idem* (1949): *Ibid.*, **23**, 255.

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EDITORIAL : VAN DIE REDAKSIE

STAPHYLOCOCCAL DISEASE

In recent years there has been an increasing incidence of staphylococcal infection. A new entity has arisen in the condition referred to as 'post-antibiotic staphylococcal enteritis'. Epidemics have occurred in hospitals through the indiscriminate use of antibiotics which have removed susceptible staphylococci, leaving hardy resistant strains which cause illness and, in some cases, death. A great many articles have been written about this pathogen—the staphylococcus—and two volumes have just appeared in which the considerable knowledge available on the subject has been combined.[1,2]

The classification of staphylococci has been a difficult problem. Fermentation tests are unreliable and inconstant. Pigmentation, which has long been regarded as a differential character of the species, is very variable and some degree of pigmentation is common among coagulase-negative strains. Thus the golden colour, held in such veneration by generations of bacteriologists, is of little value. Among other criteria employed for the purpose of classifying staphylococci are the composition of the cell wall, coagulase, antigens, the production of specific toxins, and susceptibility to phages.

Staphylococcus pyogenes has been shown to possess a nucleus, a cell wall, and various intracytoplasmic bodies. The precise nature of the nucleus is still debatable. Attempts have been made to demonstrate the presence of chromosomes and a mitotic cycle as it occurs in higher cells, but refinements of section-cutting, which will allow the electron microscope to resolve the difficulties of internal bacterial structure, may provide more certain information. In the cytoplasm there are a variety of enzymes and various granules that have often been confused with the nucleus. What appear to be mitochondria have also been demonstrated in certain bacteria. The cell wall appears to be a complex product of protein, carbohydrate and lipoid, and possibly other substances of morphological and functional importance. The mechanism and site of action of Gram staining is still obscure. Nucleoproteins may be responsible for the Gram effect. The Gram reaction may even result from the process of fixation of the cells.

The distribution of staphylococci in nature has been extensively studied. Omitting animal infections and the rare cases where staphylococci multiply in an article of food, the only reservoir, for practical purposes, is in man. Pyogenic staphylococci are mainly found in the human nose, whence skin contamination and wound infections arise. Two problems which should be explained are the virulence of the nasal strains and the factors leading to nasal carriage.[1] Surveys are based on the finding of coagulase-positive staphylococci in the anterior nares. There is a high incidence of carriers in children, there is a characteristic curve in relation to age, and there is a rapid increase in the number of carriers from infancy onwards, especially in hospitals where there is a vast pool of potential infection from fomites, dust, and the attendants.

The strains in the noses of infants are seldom the same as those in the mothers. In adults the nasal-carrier state depends on the person himself rather than on the environment, a given person being either a persistent carrier or persistently free. There is evidence that persons with noses colonized by coagulase-negative staphylococci tend to remain free from coagulase-positive infection. Urban civilization is heavily saturated with *Staphylococcus pyogenes* and staphylococci must be regarded as an endemic infection in our species.

Most of the literature relating to virulence deals with the problem indirectly. The factors which determine infectivity for man are still unknown, and animal experiments may be unreliable or misleading. The nature and role of the agents that enable staphylococci to survive and multiply in human tissues are poorly understood. The virulence of the organisms is due to a combination of factors, but much more needs to be known about the tissue reactions which sterilize a subclinical infection.

Those facts which are available concerning staphylococci and the diseases they produce, make fascinating reading. There is still much to be learned about this parasite that has so successfully established near-harmony with the human host. Many research problems await microbiologists, chemists, geneticists, veterinarians, physicians, pathologists, and others.

1. Elek, S. D. (1959): *Staphylococcus pyogenes and its Relation to Disease*. Edinburgh and London: E. & S. Livingstone Ltd.
2. Smith, I. M. (1958): *Staphylococcal Infections*. Chicago: The Year Book Publishers Inc.

KINDERS IN DIE HOSPITAAL

Gedurende die afgelope aantal jare het die hele benadering ten opsigte van die behandeling van kinders in hospitale radikaal verander. Hierdie veranderde benadering word weerspieël in die toenemende aantal geskrifte en toesprake deur kinderartse oor die saak. Gedurende die onlangse derde kongres van die Suid-Afrikaanse Pediatriese Vereniging, wat van 9-11 Oktober 1958 in Pretoria gehou is, het die Voorsitter, dr. Epstein,[1] byvoorbeeld, sy openingsrede gelewer oor die kwessie van die hospitaalbehandeling van kinders. Ook is daar onlangs 'n memorandum[2] gepubliseer wat gebaseer is op die bevindinge van 'n subkomitee van die Britse Pediatriese Vereniging waarin hulle bevindings uiteengesit word ten opsigte van die welsyn van kinders in hospitale.

Daar is veral twee faktore wat 'n belangrike rol gespeel het by hierdie nuwe benadering in verband met die hospitaalbehandeling van kinders. Eerstens moet ons noem die veranderde beeld van kindersiektes self. Tot onlangs was sterfte by kinders hoofsaaklik te wyte aan toestande soos pneumonie, tuberkulose en ander infeksietoestande. Vandag egter word die belangstelling van kinderdokters al meer gerig op daardie toestande wat nie noodwendig tot sterfte lei nie, maar wat tog baie ongelukkigheid, ongeskiktheid en ontsteltenis by die kind en by lede van sy familie veroorsaak. Dit word byvoorbeeld duidelik besef dat baie toestande van chroniese siekte, sowel as toestande van senuweeagtige swakheid en wanaanpassing, 'n liggaamlike basis het. Die onlangse werk van Lanzkowsky[3] in one eie land lewer 'n mooi illustrasie van hierdie punt. Lanzkowsky het aangetoon dat pika, of verworde eetlus by kinders, in verband staan met 'n definitiewe ystertekort en dat die toestand van pika verdwyn as die ystertekort deur eenvoudige behandeling met goedkoop preparate van yster behandel word.

'n Ander aspek van die veranderde benadering van die kinderarts ten opsigte van kindersiektes in die algemeen word weerspieël in toenemende toespitsing op voorkomende medisyne. Die voorkoming van die meeste voedingsprobleme en van baie infeksiesiektes by kinders word vandag doelbewus nagestreef. Ook word die voorkoming van ongevalle soos byvoorbeeld ongelukke, nagestreef—met goeie resultate tot dusver.

'n Tweede groot faktor wat die benadering van die probleem van hospitaalbehandeling by kinders beïnvloed het, is die nuwe insig in die ernstige emosionele en sielkundige versteurings wat soms by kinders ontstaan as gevolg van onoordeelkundige verwydering van die kinders van die moeder af en van die huis af.

Die kernpunte van die nuwe benadering ten opsigte van die hele probleem van die behandeling en welsyn van kinders in die hospitaal en daar buite kan soos volg saamgevat word.

1. Vir kinders vir wie hospitaalbehandeling nie noodsaaklik is nie, moet 'n stelsel van behandeling as dagpasiënte ontwerp word. Dr. Smallpiece[4] het onlangs 'n interessante voorlopige verslag gepubliseer van 'n eksperiment wat uitgevoer is in een van die twee pediatriese binne-pasiënteafdelings in Oxford wat gebruik is vir die observasie, ondersoek, en behandeling van kinders op die basis van dagpasiënte. Die volgende is voorbeelde van pasiënte wat met welslae op hierdie manier behandel is: klein babatjies wat nie vooruitgang toon nie, klein babatjies wat vertraging in hulle ontwikkelling toon en wat een of ander verdagte toevalle kry. By ouer kinders is sulke probleme soos voedingsprobleme ondersoek, vertraging by die bereik van die gewone mylpale, spesifieke defekte, enuresis, ens.

2. In die geval van kinders vir wie 'n korter of langer periode van hospitaalbehandeling wel nodig is, moet die volgende oorwegings gedurig in gedagte gehou word.

(*a*) Voorsiening moet gemaak word vir die moeders van kinders om saam met hulle in die hospitaal te bly en om hulle ten minste gedurende 'n gedeelte van die dag of die aand self te help versorg.

(*b*) Daar moet onbeperkte fasiliteite wees vir besoeke van naasbestaandes, behalwe gedurende tye wanneer dit werklik nie moontlik is nie as gevolg van oorwegings van behandeling, personeel, ens.

(*c*) Aandbesoeke moet veral aangemoedig word.

(*d*) Die werklike duur van die behandeling moet so kort as moontlik gehou word.

Daar is natuurlik baie voor- en nadele wat genoem sou kon word in verband met hierdie nuwe benadering, maar dit lyk tog vir ons dat die voordele belangriker en meer deurslaggewend behoort te wees as die nadele. Die konsekwente toepassing van hierdie benadering sou nie net kon lei tot 'n groter mate van gesondheid en geluk by kinders nie maar ook tot groter welstand van groter kinders en van volwassenes.

1. Epstein, B. (1958): Ongepubliseerde lesing.
2. Sub-komitee van die Britse Pediatriese Vereniging (1958): Brit. Med. J., 1, 166.
3. Lanzkowsky, P. (1958): S. Afr. T. Geneesk., 32, 1114.
4. Smallpiece, V. (1958): Lancet, 2, 1366.

ASPECTS OF THE RESUSCITATION OF THE NEWBORN WITH REFERENCE TO CAESAREAN SECTION

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The number of infants who die during the period 1-12 months of age has been greatly reduced during the last half century, but there has not been as marked a reduction in the number of infants who die during the 1st week of life.[1, 2] Although advances in obstetrical knowledge can be expected to produce a reduction in the number of stillbirths and neonatal deaths, it is possible that an improvement in the treatment of neonatal asphyxia will also make some contribution to the reduction of the neonatal mortality. In presenting this paper our aim is to deal with the problem of the treatment of neonatal asphyxia.

THE ONSET OF RESPIRATION AT BIRTH

At the time of birth the infant heart is a well-developed organ which has been called upon for some time to provide a circulation to the foetus and to a large mass of placental tissue. In contrast, however, the respiratory system is relatively primitive and it is upon the successful initiation of respiratory function at this time that the survival of the foetus is mainly dependent.

The onset of coordinated respiration follows closely on birth in a large majority of normal infants. The mechanism whereby regular respiration is initiated is not fully established but is probably a result of sensory and proprioceptive impulses received by the respiratory centre at birth.[3] If the foetal respiratory centre is depressed in function at birth the onset of respiration is delayed until the chemical effects of occlusion of the cord and mounting anoxia cause the foetus to gasp. If these gasps do not secure enough oxygen to bring the

higher parts of the respiratory centre into action, so that a coordinated respiratory rhythm establishes itself, the gasps fade away and the foetus dies.[4] Thus it has been postulated that there are 2 mechanisms which initiate respiration: a primary mechanism which acts more or less immediately after birth and a secondary reserve mechanism which acts if the foetus is not born in a physiologically alert condition. The immediate onset of respiration may be regarded as normal while the delayed and gasping response may be regarded as abnormal and less desirable, though life-saving, and is associated most frequently with deliveries involving unnatural or difficult circumstances.[3]

THE CASE FOR RESUSCITATION

Whatever the contributing causes of post-partum apnoea in each individual case, it is our experience that the act of supplying oxygen to the lungs by intermittent positive pressure results in the prompt termination of the apnoea and the adoption of rhythmical coordinated respiration. This suggests the possibility that in many deliveries which are followed by apnoea neonatorum there is superimposed on the effects of drugs or toxic products on the foetus the additional effects of an intrapartum anoxia. Drugs or toxaemia may exert their effect in part by their direct action on the foetal central nervous system and in part by reducing the placental circulation below a critical level for adequate oxygen exchange. The induction of anaesthesia is accompanied by a greatly increased flow of blood through skin and skeletal muscle due, probably, to a temporary suppression of vasomotor activity,[5] and the placental circulation may well be reduced at this time. This might explain the fact that some babies with a normal heart rate before the induction of anaesthesia are delivered by Caesarean section with a slow heart rate and cyanosis when there has been no lack of oxygen to the mother during the procedure.

The vast majority of infants, who have a period of postpartum apnoea do, of course, survive and regular breathing is established even after long periods of evident anoxia in some cases. Sufficient has been written about the possibility of anoxia consequent upon prolonged postpartum apnoea, as a possible cause of subsequent mental impairment, to suggest that it is undesirable to allow a baby to continue in a state of anoxia in the postpartum period for more than a few minutes.[6-8]

It is often stressed that the newly-born baby stands anoxia well and this contention is supported by experimental evidence that many newly-born animals can survive for much longer periods than the corresponding adults when subjected to low oxygen tensions. However, this prolonged time is measured in minutes and, although the explanations are not clear, the ability of the newborn to stand anoxia well might just as well be the result of an efficient heart or a lowered body temperature as the result of some anaerobic metabolic process peculiar to the newborn.

Although the foetus *in utero* exists in an environment in which the oxygen tension in its blood is half that of the adult, the amount of oxygen extracted from foetal blood is roughly similar to that occurring in the circulation of an adult at rest (i.e. 5 c.c. of oxygen per 100 c.c. of blood). The relative inactivity of the foetus *in utero* makes a reserve supply of oxygen in its blood unnecessary and indeed this supply is small, but when the newly-born infant is subjected to anoxia resulting from postpartum apnoea, the effects are obvious on the baby almost immediately in the form of a depression of reflexes, activity and alertness. The fact that a newly-born baby can achieve a limited respiratory exchange from the mucous membranes of the upper respiratory and alimentary tracts accounts for many of the long survivals that have been reported which have been accompanied by apnoea.

From a survey of the causes of perinatal mortality, it is apparent that even when unavoidable causes of death are omitted, such as congenital malformations and stillbirths due to haemolytic disease, we are left with a considerable problem of mortality and morbidity.[9] Thus Bound *et al.*[10] reviewing the necropsies of 221 neonatal deaths following 10,044 live births, found that the pulmonary syndrome, birth trauma, pneumonia and intraventricular haemorrhage comprised $\frac{2}{3}$rds of all the causes of death. They found that the clinical picture of these 4 conditions was similar and difficult to differentiate. Delay in the onset of respiration occurred in half the cases and poor condition at birth was common. Of the cases which showed cerebral irritation only 24% had evidence of intracranial trauma, while 63% had evidence in their lungs of periods of abnormal pulmonary ventilation. Of the cases which died from the pulmonary syndrome, which comprised 27% of the total number of deaths, 50% of the babies were in poor condition at birth and from that time showed persistent difficulty with respiration. The aetiology of the pulmonary syndrome of the newborn remains uncertain but it is believed by some that the hyaline membrane may be partly the result of failure to establish efficient respiration.[10, 11] Of the babies who died from this syndrome 43% weighed between 1,000 and 2,000 g. (4 lb. 6 oz.). Premature babies often have difficulty with the onset of respiration and it has been shown that they are not able to oxygenate their blood as well as mature infants under the same environmental conditions.[10] Premature babies weighing below 1,500 g. comprised as much as 60% of deaths occurring during the first day of life.[2]

All degrees of severity of the abovementioned pathological conditions occur and where they exist with less severity, and where the infant is more vigorous at birth, he will have a greater chance of survival. As difficulty with the onset of respiration, and consequently anoxia, often occurs in these conditions, this difficulty provides an excellent empirical reason for treating apnoea neonatorum promptly so as to ensure effectively the maximum vigour and chances of survival for these babies.

CAESAREAN SECTION

The following observations are of particular interest with reference to the resuscitation of the newborn at Caesarean section:

1. Postpartum foetal apnoea following delivery by Caesarean section is common, particularly when a general anaesthetic has been administered to the mother.[12, 13] Comparison of a group of uncomplicated Caesarean sections with a group of normal deliveries (with the use of spinal anaesthesia in both groups), showed that the babies delivered by Caesarean section were in poorer condition and that the onset of respiration was less prompt than in the group delivered through the pelvis.[14]

2. The type of anaesthesia used to deliver babies weighing over 2,000 g. had no significant effect on foetal mortality in a series of 671 Caesarean sections reported by Lund,[15] but babies weighing under 2,000 g. fared better when delivered by conduction anaesthesia than when delivered by general

anaesthesia. This does not mean that general anaesthesia cannot be improved to give equally good results.

3. The foetal mortality was low where no foetal or maternal complications were present (1·8%, excluding stillbirths and malformations), but high when these complications were present (13·4%).[15]

4. 'Hyaline membrane' is significantly commoner in babies delivered by Caesarean section.[10]

Anaesthetic Technique for Caesarean Section

We have used the following technique for a series of Caesarean sections: The mothers were premedicated with atropine and a stomach tube was passed before operation. Before anaesthesia was induced the mothers were allowed to inhale 100% oxygen for a few minutes and this was followed by the intravenous injection of up to 0·25 g. of thiopentone and 60 mg. of succinylcholine. A cuffed endotracheal tube was inserted and the patients were vigorously inflated with nitrous oxide and 40% oxygen. The operation was then started and ether introduced to supplement anaesthesia. The babies were delivered on an average 9 minutes after the induction of anaesthesia.

This type of anaesthesia is widely used for Caesarean section. It has the following advantages:

1. No pre-operative narcotic drugs which may depress the foetus are given to the mother.

2. The use of a stomach tube before induction and the apnoea produced by succinylcholine during induction makes the passing of an endotracheal tube almost free from the danger of the inhalation of vomit.

3. Complete oxygenation of the mother can be assured before and during the anaesthesia.

4. Light ether anaesthesia for a period of 4-5 minutes is unlikely to depress the foetus but does give added analgesia to the thiopentone-relaxant technique. This technique has the disadvantage that thiopentone, ether, and possibly succinylcholine,[16] cross the placental barrier and affect the foetus if used in excessive dosage.

RESULTS

The following results were obtained in 242 consecutive Caesarean sections for which we administered the anaesthetic and in which the foetus was considered alive 1 hour before the operation: Of the 242 cases, 103 (42·6%) sections were performed for foetal or maternal complications exclusive of disproportion. Foetal distress was diagnosed in 60 cases (24·8%), prolonged labour in 27 cases (11·2%) and toxaemia of pregnancy in 26 cases (10·7%). Antepartum haemorrhage occurred in 10 cases, prolapsed cord in 5 cases and a ruptured uterus in 3 cases. The remaining 139 cases were operated on for indications such as previous Caesarean section, disproportion or abnormal lie or presentation. Over 90% of the cases were in labour at the time of operation. There were 31 premature babies of which 5 weighed under 2,000 g. (4 lb. 6 oz.), while the remainder weighed between 2,000 and 2,500 g. (5 lb. 8 oz.). There were no maternal deaths at or after the operation, and no babies were born dead.

Neonatal Deaths

There were 8 neonatal deaths.

Case 1

This baby had a tracheo-oesophageal fistula and hydrocephalus, and died on the 4th day after an operation for correction of the fistula.

Case 2

The mother of this baby was admitted having been in the second stage of labour for 12 hours, and foetal distress was present. The baby died 7 minutes after delivery by Caesarean section without gasping or responding to resuscitation. At necropsy the trachea and bronchi contained meconium and the postmortem appearances were consistent with death due to asphyxia.

Case 3

This baby died 16 minutes after operative delivery for a ruptured uterus without gasping or responding to resuscitation. Necropsy showed large amounts of amniotic debris in the lung alveoli.

Case 4

This baby died on the 2nd day after delivery from a ruptured uterus. He was in poor condition at birth but responded to resuscitation and was breathing regularly 9 minutes after delivery. Necropsy showed large amounts of amniotic debris in the lung alveoli and areas of unexpanded lung.

Case 5

This baby was delivered prematurely in good condition after an antepartum haemorrhage. He weighed 2 lb. 12 oz. and died on the 6th day. Bronchopneumonia was found to be present at postmortem examination.

Cases 6 *and* 7

These babies survived for 45 minutes and 15 hours respectively and at necropsy subdural haemorrhages were evident. The 6th baby never breathed and the 7th one never achieved more than an occasional uncoordinated gasp and life was maintained by artificial respiration.

Case 8

The mother of this baby had eclampsia and had had 1 fit before operation. A baby weighing 5 lb. 2 oz. was delivered in poor condition but after resuscitation was breathing regularly 8 minutes later. The baby died 1 week after birth. The lungs showed patchy atelectasis but no sign of pneumonia. The kidneys contained numerous immature glomeruli.

While such classifications as described by Flagg[17] are useful in assessing the condition of the baby after delivery, the heart rate appeared to us to be the most useful single sign in this respect. The heart rates of 150 babies were recorded immediately after Caesarean section. Of these babies 48 (32%) had a heart rate below 100 per minute, 20 (13·3%) had heart rates ranging from 100–119 per minute and 82 (54·7%) had heart rates above 119 per minute. Two minutes after delivery 44 (91·7%) of the 1st group, 15 (75%) of the 2nd group and only 3 (3·7%) of the 3rd group were not breathing in a co-ordinated and rhythmical manner, and were in fact apnoeic.

All the babies that were not breathing rhythmically 2 minutes after delivery were inflated with oxygen. This procedure was carried out in 76 (31·4%) of the cases. In 242 cases of Caesarean section only 4 babies (cases 2, 3, 6 and 7) did not establish a satisfactory respiratory pattern within 10 minutes of birth. All the other babies had pink mucous membranes and a heart rate above 120 per minute within 4 minutes of delivery and only a few of the 76 cases which were inflated with oxygen took longer than 4 minutes after delivery to establish a satisfactory respiratory pattern.

DISCUSSION

There seems to be some doubt whether unexpanded foetal lungs can be inflated without damage occurring to lung tissue. In 1933 Wilson and Farber[18] showed that a minimum pressure of between 25 and 30 cm. of H_2O was necessary to inflate unexpanded foetal lungs. In 1937 Wilson, Torrey and Johnson[19] submitted the lungs of 3 stillborn foetuses to a pressure of 25 cm. of H_2O for 4 seconds and the lungs of

l stillborn foetus to this pressure for 20 seconds, and were able to demonstrate damage to the alveoli on histological sections. They concluded that damage occurred to the lungs when they were inflated at the minimum pressure required to expand the alveoli. In 1952 Day *et al.*[20] showed that the degree of expansion of lungs submitted to inflation depended on both the pressure and the time interval during which the expanding force was applied. Thus satisfactory expansion of alveoli could be obtained with comparatively high pressures delivered over periods of 0·1-0·2 seconds without causing alveolar damage or overdistension, except in very immature foetal lungs (e.g. from a foetus weighing under 2 lb.) where overdistension of alveolar sacs occurred.[20]

Working on these principles Goddard has established that patchy aeration occurs in full-term foetal lungs at pressures between 30-40 cm. H_2O delivered for 0·2 second, and that uniform expansion can be achieved at pressures between 50-60 cm. H_2O delivered for 0·2 second without causing damage to lung tissue. A Goddard-Bennett-Lovelace infant resuscitator has been designed and used to resuscitate apnoeic infants using these high pressures without any clinical or X-ray evidence of harm occurring to the lungs.[21] It should be noted that the time interval for the pressure wave, which has been found satisfactory, is $\frac{1}{10}$th of the time interval used by Wilson *et al.*[19] when they were able to show lung damage.

Once unexpanded alveoli have been expanded, a much reduced pressure is subsequently required to inflate them and it is most probable that the cohesion of moist alveolar walls is mainly responsible for the initial high resistance offered to inflation.[3]

We have been using a resuscitator shown in Fig. 1 to inflate apnoeic babies with air or oxygen. It consists of a rubber bulb connected to a face mask of firm construction. The pressure at which the lungs are inflated is measured through an outlet interposed between the bulb and the face mask connected to a clinical mercury manometer when in

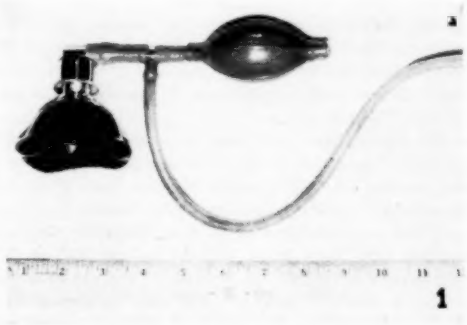

Fig. 1. An infant resuscitator, incorporating a mask, a bulb and a non-return valve. The pressure in the mask is measured with a standard sphygmomanometer connected *via* the tubing which is shown.

use. At the opposite end of the bulb is a non-return valve. When oxygen is used it is led in by a T-piece attachment which is plugged in distal to this valve. The open arm of the T-piece ensures that an increased oxygen pressure will not build up in the face mask when the bulb is not being squeezed.

The volume of gas delivered by the bulb on each manual compression is 20 c.c. which is roughly equal to the average tidal volume of a full-term infant. It is a safe volume even for premature infants of 2,000 g. because lung compliance allows a much larger volume than this to be introduced without pressure in the bronchial tree building up to dangerous levels.[21] When the bulb is briskly squeezed, the contained gases are delivered in approximately 0·2 second and the maximum pressure registered is about 30 mm. Hg. (40 cm. H_2O) when applied to unexpanded lungs. The pressure achieved depends upon the compliance of the lungs and when some lung expansion has occurred, the delivery of this small fixed volume of gas will result in a smaller rise in pressure, which—as already stated—is what is required.

In addition to the experimental and clinical evidence that inflation pressures of 40 cm. H_2O are safe when applied for a limited time to the lungs of a newborn infant, Smith and Chrisholm[22] have shown by an ingenious device that the average alert newly-born baby is capable of exerting a negative pressure of between 40-50 cm. H_2O during its early inspiratory efforts. It can be deduced from this that there is little danger in applying a similar positive pressure. This deduction should be qualified by stating the fact that occasionally a premature infant produces alveolar rupture and interstitial emphysema by his own respiratory efforts and presumably the same effect could result from an applied positive pressure.[23]

Resuscitative devices which are designed to deliver oxygen at pressures below 25 cm. H_2O are unable to expand unexpanded lungs. Their efficacy in such cases is due to the fact that they bring a flow of oxygen into contact with the bronchi and allow a limited respiratory exchange. If the baby is still able to respond to tactile stimuli, or has in fact already gasped, the application of such devices will stimulate the foetus to breathe or will aerate the already expanded alveoli. Such desirable effects can be achieved by insufflation with an oxygen catheter.

The use of the rocking bed has similar limitations when used in circumstances of total apnoea, but is of value in aiding respiratory and circulatory activity in babies who have started breathing.

When using positive pressure to inflate babies it is dangerous to introduce oxygen into the trachea at unknown pressures for periods much longer than 0·2 second. A rubber balloon will burst if exposed to the initial critical expanding pressure for a long enough period and so will lung alveoli.

When an infant is inflated with a face mask one can observe the bilateral descent of the diaphragm as the lungs expand. *Fig.* 2 is a chest X-ray showing partial expansion of the lungs

Fig. 2. An X-ray showing partial expansion of the lungs achieved by the application of positive pressure *via* a face mask in a stillborn baby.

in a full-term stillborn infant submitted to positive pressure.

In some cases gas can be seen to enter the stomach by the appearance of a small swelling in the left upper quadrant of the abdomen. This never causes a problem since such resuscitation is confined to a very brief period and the stomach quickly deflates as the gas passes into the upper alimentary tract. The stomach can also be deflated *via* the oesophagus by pressing gently on the stomach, bearing in mind that any regurgitated gastric contents must be removed from the pharynx.

RESUSCITATION BY INTERMITTENT POSITIVE PRESSURE

The resuscitator described is used to terminate apnoea following delivery if apnoea is prolonged for a period considered undesirable by the medical attendant. Only partial expansion of the lungs is achieved, but a rhythmical respiration is initiated.

After delivery the baby is placed on an inclined plane with the head extended and the pharynx is cleared of amniotic debris with the aid of a laryngoscope and a sterile rubber catheter connected to a suction unit. The mask is firmly placed over the nose and mouth and the rubber bulb is squeezed briskly 6-8 times over a period of the same number of seconds and then removed from the face. A rise in the heart rate from the slow anoxic level of 50-70 per minute to 140-180 per minute can be expected within 10 seconds followed by the onset of rhythmical breathing within a similar period. Should the onset of breathing be delayed, as happens occasionally, the heart rate should be kept above 120 per minute by the periodic application of the resuscitator. (Before re-application of the resuscitator the pharynx should be inspected to exclude any regurgitated gastric contents.) When oxygen is used for inflation, the response in the pulse rate and the onset of breathing is more rapid than when air is used.

If the heart rate does not respond to inflation as stated, a block in the trachea must be excluded, for even babies who have suffered from cerebral injury usually show an initial increase in the heart rate when oxygenated. There have been 5 such cases in this series; 2 (cases 2 and 3) were delivered early in the series. Neither responded to resuscitation and at postmortem examination much semi-solid matter was present in the bronchial tree. No tracheal aspiration was carried out in either case. Subsequently, 3 cases presented a similar clinical picture. At Caesarean section the amniotic fluid was heavily stained with meconium and there was some delay in delivery of the head. These babies showed no response to inflation with oxygen. One baby did gasp but appeared to have respiratory obstruction and all 3 showed signs of progressive anoxia with the disappearance of muscular tone and a progressively slowing heart rate. Tracheal toilet was performed in each case and a large amount of semi-solid material was removed. This was followed by an immediate and gratifying response to resuscitation (positive pressure) and the onset of a satisfactory respiratory pattern.

Thus, of 242 deliveries, we think that 5 babies needed tracheal toilet and that all 5 would have died without it. These deaths might then have been classified as stillbirths because they did not achieve pulmonary ventilation.[24] This definition of a stillbirth might allow preventable neonatal deaths to escape due attention as such.

A satisfactory tracheal suction catheter can be made from a 7-inch-length of polythene tubing with a 1·5 mm. bore. The distal end is rounded off in a flame and the proximal end is fitted over a large-bore needle and connected to a suction unit. The cathether is easier to introduce into the trachea before the suction apparatus is switched on and, although the lumen is small, the walls do not collapse as is often the case with a rubber catheter of this size when it is connected to a suction unit. When in use the lumen of the catheter is cleared of debris by periodically dipping the tip into a bowl of water.

It is generally accepted that the inhalation of amniotic fluid into the foetal lungs occurs *in utero*. It is possible that there is a limit to the volume of amniotic fluid that can be inhaled just before delivery and that a large quantity of inhaled fluid may prejudice the survival of a foetus already handicapped by intrapartum anoxia. After all, drowning is possible at any age. A baby about to be delivered through the pelvis is so compressed by surrounding tissue that its attempts to breathe are limited. The baby delivered by Caesarean section is not so limited and any anoxia, or the tactile stimulation caused by the surgical delivery, might result in increased respiratory activity and the inhalation of large amounts of amniotic fluid at a time when the oxygen supply is cut off with the severing of the cord. While an alert newly-born baby is able to dispose of a greater or lesser amount of inhaled amniotic fluid, it is difficult to believe that a baby will not benefit from the removal of solid matter from the trachea and pharynx and it requires some imagination to believe that such material will flow out of the trachea when the baby is on an inclined plane. We have observed this material lying between the true and false cords of a baby lying at 40° head down without any indication either that the baby or gravity would remove it.

We have had little experience with the use of intragastric oxygen as a means of treating neonatal asphyxia, but we have successfully introduced oxygen into the lungs after other methods had only been sufficient to maintain an asphyxiated baby alive long enough to make permanent damage to the central nervous system a distinct possibility.

Routine gastric aspiration has not been practised on babies following delivery although there is some evidence that such a practice prevents the inhalation of gastric contents and reduces neonatal mortality.[1, 25]

The use of respiratory stimulants has been confined to giving nalorphine to the mother before delivery or to the baby in cases where pethidine or morphia has been given to the mother within 3 hours of the Caesarean section.

To conclude, we would like to stress that the methods of resuscitation described need seldom be applied to babies delivered normally. Mainly as a result of the use of analgesic drugs during labour, neonatal apnoea, following normal delivery, is now sufficiently common to be thought of as normal. Neonatal apnoea is, however, not a normal phenomenon and, although a few minutes of apnoea following normal delivery probably has no significant effect on the baby, the period of apnoea following Caesarean section is often longer. We feel justified in bringing this abnormal period to a speedy end.

We cannot claim that our results are much better or worse than those of other hospitals where other methods of anaesthesia and resuscitation are used because we lack an adequate control series for comparison, and our series comprises a relatively small number of cases. We have, however, set out

our views for those interested in infant resuscitation and have outlined the limits and dangers in the use of positive-pressure inflation of newly-born babies.

SUMMARY

The causes and the consequences of the delayed onset of respiration in newly-born infants, particularly after Caesarean section, are discussed and a case is made out for the early oxygenation of such cases.

A method of anaesthesia for Caesarean section is described.

A simple resuscitator is described and the problems met in the use of positive-pressure inflation of newly-born babies are discussed.

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REFERENCES

1. Little, D. M., Hampton, L. J. and White, M. L. (1952): Anesthesiology, **13**, 518.
2. Bundesen, H. N. (1953): J. Amer. Med. Assoc., **153**, 466.
3. Smith, C. A. (1951): *The Physiology of the Newborn Infant*, 2nd ed., p. 38. Springfield: Charles C. Thomas.
4. Barcroft, J. (1946): J. Roy. Inst. Publ. Hlth., **9**, 86.
5. Churchill-Davidson, H. C. (1957): S. Afr. Med. J., **31**, 1017.
6. Preston, M. I. (1945): J. Pediat., **26**, 353.
7. Penfield, W. (1954): Curr. Res. Anesth., **33**, 145.
8. Schreiber, F. (1938): J. Amer. Med. Assoc., **111**, 1263.
9. Annotation (1957): Brit. Med. J., **1**, 216.
10. Bound, J. P., Butler, N. R. and Spector, W. G. (1956): *Ibid.*, **2**, 1191.
11. Taylor, E. S., Scott, W. C. and Govan, C. D. (1951): Amer. J. Obstet. Gynec., **62**, 764.
12. Ozinsky, J. and Harrison, G. G. (1956): Brit. Med. J., **1**, 725.
13. Bingham, W. (1957): Anaesthesia, **12**, 435.
14. Agpar, V. (1953): Curr. Res. Anesth., **34**, 1.
15. Lund, P. V. (1955): J. Amer. Med. Assoc., **159**, 1586.
16. Pittinger, C. B. and Morris, L. E. (1955): Curr. Res. Anesth., **34**, 107.
17. Flagg, P. J. (1931): Amer. J. Obstet. Gynec., **21**, 537.
18. Wilson, J. L. and Faber, S. (1933): Amer. J. Dis. Child., **46**, 590.
19. Wilson, R. A., Torrey, M. A. and Johnson, K. S. (1937): Surg. Gynec. Obstet., **65**, 60.
20. Day, R. L., Goodfellow, A. M., Agpar, V. and Beck, G. J. (1952): Pediatrics, **10**, 593.
21. Goddard, R. F. (1955): Curr. Res. Anesth., **34**, 1.
22. Smith, C. A. and Chrisholm, T. C. (1942): J. Pediat., **20**, 338.
23. Rees, J. G. (1958): Brit. Med. Bull., **14**, 38.
24. Resnick, I. (1957): S. Afr. Med. J., **31**, 559.
25. Gellis, S. S., White, P. and Pfeffer, W. (1949): New Engl. J. Med., **240**, 533.

AN EARLY STAGE IN THE TRANSITION OF THE INTESTINE FROM THE UMBILICAL CORD

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Only 10 human embryos showing the intestine partially in the umbilical cord and partially in the abdomen have been recorded in the past. In 1898 Mall[7] stated that he had never seen the transition stage in the human embryo and concluded that the return of the intestine from the umbilical cord must be a rapid and total action. However, the following year he described a specimen in which the caecum alone remained in the cord.[8]

Since then further specimens have been described by Bardeen[1] (1914), Vogt[12] (1917) and Ekehorn[2] (1916). Pernkopf[9] (1925), and Snyder and Chaffin[10] (1952) each reported single specimens.

To this small collection another specimen is now added. Whereas the embryos previously described show later stages in the transition of the bowel from the umbilical cord, this specimen reveals one of the earliest stages in this process. The embryo was received from the Gynaecology Department, New Somerset Hospital, Cape Town, following an abortion in a Coloured female. It was immediately fixed in 5% formalin, and examined 24 hours later. The membranes of the umbilical cord were opened and the bowel therein studied. Thereafter the abdominal wall was removed to view the intra-abdominal gut.

DESCRIPTION OF THE EMBRYO

The embryo measures 34 mm. C-R length. No abnormal external features were noted (Fig. 1).

(A) *The Bowel within the Umbilical Cord*

The greater length of the small intestine lies within the umbilical coelom, massed in coils to the right of and below the proximal colon (Fig. 3). The colon loops over the coils of the small intestine and enters the abdominal cavity in the midline, lying immediately to the left and slightly superior to the emerging loop of small bowel. The ileum curves upwards to enter the colon on its right side and from below (posterior-aspect), this junction being marked by a local dilatation of the large bowel. The caeco-appendix curved

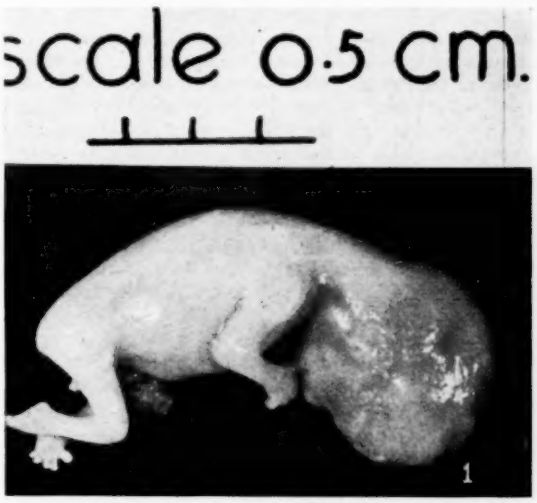

Fig. 1. Photograph of 34 mm. CRL embryo, lateral view. Note bowel lying extra-abdominally in the umbilical sac.

forwards and to the right of the terminal ileum, ending in a filamentous structure visible to the naked eye. The antero-posterior view of the ileo-caecal junction and caeco-appendix shows the following points (Fig. 2): (The position of the ileo-caecal junction and appendix has been reversed to correspond with the adult appearance so that the anterior aspect in the drawing corresponds to the posterior surface of the embryonic caeco-appendix after complete rotation of the gut has occurred).

1. The caecum is clearly indicated in this specimen as the proximal dilatation, while the distal narrower portion is the vermiform appendix. Much confusion still exists regarding the stage in embryonic development when the caecum is

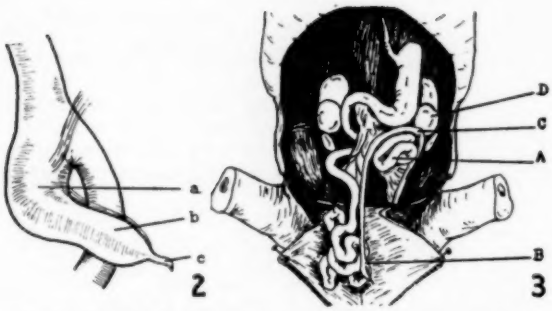

Fig. 2. Drawing, antero-posterior view, of ileo-caecal region. a—Caecum; b—Vermiform appendix; c—'Transient' appendix.
Note the presence of the anterior ileo-colic fold and meso-appendix.

Fig. 3. Drawing, 34 mm. CRL embryo, anteroposterior view. The abdominal wall has been removed and the membranes of the cord opened.
A—First coil of small bowel reduced into the abdominal cavity; B—Ileo-caecal junction; C—Colic angle; D—Left kidney.

first observed as distinct from the appendix. Tarenetzky[11] (1881) observed that these organs could only be clearly distinguished from each other in embryos of 65 mm. length. Gladstone and Wakely,[3] in describing the caeco-appendicular region in embryos of 45 mm. CRL, state '. . . the differentiation of the caecum from the appendix has not yet taken place'; while Keith[5] maintains that the caecal diversion is of the same calibre until the 5th month. Kelly and Hurdon,[6] however, were able to distinguish a larger proximal pouch—the caecum and a smaller distal part in embryos of 8 weeks age.

In this specimen the presence of two folds of mesentry in the caeco-appendicular region (Fig. 2) further serves to distinguish these organs. One such fold crosses posterior to the ileo-caecal junction and becomes lost on the posterior aspect of the proximal wider part. This is the *ileo-colic* fold which in the adult is attached to the anterior aspect of the caecum. The second fold which crosses the caecum on its anterior aspect, attached along the inner or iliac border of the distal part, is the meso-appendix.

2. The terminal filament arising from the apex of the appendix is the so-called 'transient appendix' first described by Kelly and Hurdon[6] (1905). They found that it appeared in embryos of 10-20 mm. length and disappeared very soon afterwards. Gluckman,[4] however, was able to observe this process in embryos of up to 120 mm. length. He found that it reached its maximum development in embryos of 40-50 mm. length when it is visible to the naked eye 'as a thick fibrous process rather rigid, and resembling a snail's horn'. By comparing this structure with the contractile appendix as found in the lower monkeys, he believes that this supports the theory of ontogenetic recapitulation in the human embryo. Persistence of this transient appendix is regarded as providing an embryological basis for the presence of a supernumerary appendix.

(B) *The Bowel within the Abdominal Cavity*

The first coil of small bowel returning into the abdominal cavity curves below and to the left of the superior mesenteric artery (Fig. 3). The proximal part of the hind-gut and the termination of the mid-gut (distal transverse colon) form the colic angle which is in close proximity to the duodeno-jejunal flexture and is related posteriorly to the medial aspect of the lower pole of the left kidney. The returning coil of small bowel elevates the colic angle both upwards and outwards while it lies anterior to the mesentery of the hind-gut pushing this over to the left. The colon distal to the colic angle passes medial to the left gonad.

SUMMARY

An early stage in the transition of the intestines from the umbilical cord to the abdomen is recorded. Observations are noted on the appearance of the intra- and extra-abdominal gut, with particular reference to the ileo-caecal region. The caecum and appendix are clearly differentiated at this stage and the presence of the transient appendix is indicated.

REFERENCES

1. Bardeen, C. R. (1914): Amer. J. Anat., **16**, 427, 446.
2. Ekehorn, G. (1916): Upsala Läk.-Fören. Förh., **21**, 433.
3. Gladstone, R. J. and Wakeley, C. P. G. (1923): Brit. J. Surg., **11**, 503.
4. Gluckmann, F. (1946): C.R. Acad. Sci. (Paris), **223**, 594.
5. Keith, A. (1933): *Human Embryology and Morphology*, 5th Ed. London: Edward Arnold and Co.
6. Kelly, H. A. and Hurdon, E. (1905): *The Vermiform Appendix and its Diseases*. Philadelphia and London: W. B. Saunders and Co.
7. Mall, F. P. (1898): Bull. Johns Hopk. Hosp., **9**, 297.
8. *Idem* (1899): Anat. Anz., **16**, 492.
9. Pernkopf, E. (1925): Z. Anat. Entwickl. Gesch., **77**, 1.
10. Snyder, H. R. (Jr.) and Chaffin, L. (1952): Anat. Rec., **113**, 451.
11. Tarenetzky, A. (1881) in Keibel, F. and Mall, F. P. (1912): *Manual of Human Embryology*. Vol. 2, p. 318. Philadelphia and London: J. B. Lippincott Co.
12. Vogt, W. (1917): Z. Angew. Anat. Konstitutionsl., **2**, 87.

WORLD EPIDEMIOLOGY AND HEALTH STATISTICS

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Only three hundred years separate the present day from the time when John Graunt, Pascal, and de. Fermat were founding the basic scientific methods of epidemiology and statistics. Not ten years have elapsed since the first complete arrangement—the World Health Organization—was founded to coordinate common international interests in health. Yet today the evidence of progress in the different fields of world epidemiology is impressive. The plea made by the International Statistical Institute in the last century for some agreement on disease nomenclature and classification has not been in vain. Nomenclatures are being sought by medical practitioners and statisticians in many countries. The International Classification of Diseases and Causes of Death, after being fostered by the International Statistical Institute alone, came under the joint sponsorship of the Institute and the Health Organization of the League of Nations for the Fourth and Fifth Revisions adopted at the Conferences in Paris in 1929 and 1938.

The early history of epidemiology was conspicuously connected with communicable disease. Beliefs of supernatural or natural causation occasionally foreshadowed modern theories. Whether it was Mosaic law, Hippocratic aphorism, Galenic dictum, or the 'epidemic constitutions' of Sydenham, there was the idea of 'disease' exposed to outside influences or 'atmospheres', and having modes of 'behaviour'. The gradual growth of descriptive epidemiology through the ages, from Hippocrates to Hirsch, invariably reflected the concern of the times in communicable diseases. The immediate disciples of Pasteur and Koch created a deceptively simple epidemiology in which communicable disease had a physical cause—a bacterium or other

micro-organism—and its spread of infection, even if complicated by such an intermediary as a malaria-carrying mosquito, did not seem mysterious. Soon, however, these theories lost their simplicity, though fortunately preventive medicine has not always had to await full epidemiological understanding before action, otherwise the world might still be bearing the full burdens of cholera, malaria, and the like.

The scope of modern epidemiology is widening. Epidemic diseases in general and the quarantinable group in particular are no longer as prominent as before. Conversely the decrease of such disease has thrown into relief other and more chronic disabilities. Many diseases owe the recognition of their importance to the extension and greater accuracy of national health statistical descriptions. The changing age constitution of many communities has shown itself in differing patterns of morbidity and mortality.

Awareness of these epidemiological trends led earlier health organizations, such as those of the League of Nations, the Pan American Sanitary Bureau, and the Office International d'Hygiène Publique of Paris to launch programmes in the fields of statistics and epidemiology. When the World Health Organization (WHO) assumed their responsibilities it inherited an effective tradition. It was further required by its Constitution, framed in a newer knowledge, to extend its functions in these and related subjects. Even if the tradition of its predecessors or the constitutional statements had not existed WHO would perforce have had to undertake international epidemiology. Helping countries to improve their services had early shown the dependence of most health and medical programmes on this basic subject. This paper is a brief outline of some examples of world epidemiology.

COMMUNICABLE DISEASES

The epidemiology of communicable disease is today usually a highly intricate matter of action and reaction of many factors—host, infective agent, vector on occasion, and environment. There is an ecology of each disease and its components to study. All epidemiological tools are needed—description of the natural history of each living participant and its setting in the chain of events; statistical analysis of the associated mass phenomena; and experiment in laboratory and field.

The special group of the quarantinable diseases, not unexpectedly, has been the most carefully studied. Indeed, it was the International Sanitary Conference of last century, faced with the dilemma of the spread of cholera, plague and yellow fever from country to country on the one hand, and of the disruption of international traffic by arbitrary quarantine on the other, which stimulated international studies of these diseases.[1]

WHO has maintained the system of notifications of these and other diseases. Through publication of this material, with occasional analytical studies, in its technical journals it is providing essential data for a continuing examination of the international behaviour of the six quarantinable diseases (cholera, plague, typhus, relapsing fever, smallpox, and yellow fever), as well as of such other infectious diseases as tuberculosis, the virus diseases, the enteric diseases, and the so-called communicable diseases of childhood.

The demand for general world campaigns to assist countries in dealing with malaria, treponematosis, poliomyelitis, influenza, bilharziasis, diarrhoeal diseases, tuberculosis, etc., has led to a succession of associated international epidemiological investigations. A series of publications—expert committee reports, monographs, and papers in its technical journals—express the important contributions thus made to the subject.[2] These are having value both in the scientific analysis of, and in the administrative action against, the diseases in question. Insecticide resistance is being defined as a factor in malaria; variation in virus strains in the spread of influenza; mollusc identification in the transmission of bilharziasis; and definition of tuberculin reaction in the control of tuberculosis, etc.

A device inherited from the League of Nations is proving a valuable means of international collaboration in studying communicable and other diseases.[3] This is the network of national institutions and laboratories associated with one or more designated international centres. In 1938 an international salmonella centre was established at the Statens Seruminstitut, Copenhagen, to investigate technical problems of nomenclature, identification and classification. On the recommendation of the International Association of Microbiological Societies, this arrangement was expanded into 3 international centres (Copenhagen, London, and Atlanta, Georgia) to deal with the salmonellae, the escherichiae, and the shigellae. These centres, on behalf of countries, collect, identify, maintain and distribute cultures of enteric bacteria, and prepare and distribute diagnostic antisera mainly to determine the various antigenic types.

The precedent of the League of Nations was further followed by WHO in 1947, when a World Influenza Centre was established in the National Institute for Medical Research in London. By 1957, the resultant network consisted of 2 world reference laboratories in London and Montgomery, Alabama, USA, and 60 WHO-designated influenza centres in 40 countries. The functions of the influenza centres are twofold: firstly, to report with all speed the occurrence of influenza within a country and, secondly, to identify the type of influenza virus. Similar epidemiological work on an international basis is also now being done through networks of national centres related to selected international reference centres in poliomyelitis, brucellosis, 'cancer', pathological standards, statistics and blood grouping.

Thus far, this arrangement of world and regional networks of national laboratories, linked with one or more national institutions designated as international or regional reference centres, is most promising. It is assisting the collection and diffusion of epidemiological and other information, the international study of the epidemiological features of a number of important diseases, and the coordination of scientific and administrative work. It is a device which aids international purposes without weakening national institutions. It avoids bureaucratic and other doubtful tendencies which might arise if WHO established and staffed its own international laboratories or centres.

HEALTH STATISTICS

Epidemiology, especially in its international practice, is dependent upon the statistician for two essentials; firstly, numerical data on the population and associated factors affected by the disease or condition being considered and, secondly, the techniques based on mathematics enabling mass data to be analysed.

There is no older international health story than that of the attempts to collect statistical data on human populations, and to apply comparable definitions and methods. Thus came the succession of disease nomenclatures and lists of classification of deaths and diseases. WHO has continued and strengthened the work of its predecessors in these subjects. In 1948, the World Health Assembly adopted WHO Regulations No. 1, which countries undertook to follow in the collection and transmission of statistics on causes of death. These regulations require, *inter alia*, that such statistics should be given for a territory as a whole and its principal towns, and should be arranged in the accepted groupings for age and sex. A critical provision requires the medical certificate to indicate clearly the cause of death, antecedent morbid conditions, and other significant contributory circumstances. The regulations are stimulating and are guiding country authorities to collect and publish medical statistics in a form suitable for analysis by others.

The International Classification of Diseases, Injuries and Causes of Death has been maintained by WHO through the Sixth and Seventh Revisions issued in 1948 and 1958. Sympathetic to the difficulties of many health administrations, these revisions provide a 'short list' of 50 causes. This helps countries to collect and classify medical data of the simplest kind. Also available is a single list applicable to both mortality and morbidity statistics, which promises at last to produce some order in the international use of sickness data.

A manual has been issued by WHO in 3 languages—English, French and Spanish—which includes the international lists, the WHO Regulations No. 1, and rules to guide the compiler in the application of the Lists. Guidance is also given by the WHO Centre established in the General Register Office of England and Wales. It is studying the problems arising in the coding of death certificates, the tabulation of records, and the interpretation of doubtful cases.

The provision of nomenclatures, lists, classifications and other procedures will not of itself provide complete, reliable health and medical statistics. Indeed, successive sessions of the WHO Expert Committee on Health Statistics have left no illusions of the practical difficulties that countries have to overcome. It is rarely possible to introduce statistical systems ahead of other

general administrative developments in social services and local government. Fully aware of the fact that knowledge of populations and their vital facts is poor in most parts of the world, WHO has a comprehensive campaign under way. The United Nations Organization is appealing to countries to hold regular censuses of populations and to provide themselves with records of births, deaths, and other important social happenings. To this end seminars are being held, the training of staffs assisted, and technical guidance provided. WHO has been directly associated with much of this work.

For its own part, WHO has appointed statisticians in 4 of its 6 regional offices to encourage and aid countries to undertake improvements. Further, it has enabled many local officers to receive special training through WHO fellowships and, in a few cases, has responded to requests by sending consultants to advise national health administrations on statistical problems.

Statistical records have long been gathered by international health agencies. This process, expressed in the issue of monthly and annual epidemiological and vital statistics reports, has been maintained by WHO. Though a large number of territories is unable to submit returns and many can provide only incomplete or inaccurate records, WHO receives some 7,000 reports of various kinds from over 250 countries and territories. It is a heterogeneous mass in form, accuracy, completeness and classification—ample proof of the need for the various international efforts here mentioned to persuade countries towards completeness, accuracy and comparability of their statistical returns.

Awkward though this mass is, WHO arranges it for publication in as suitable a form of mortality and morbidity tables as possible. Following an exchange arrangement with the United Nations, the WHO tables also give the important basic facts of populations, births and deaths. The monthly and annual volumes present tables on such subjects of epidemiological significance as: causes of death according to age and sex for 30-40 countries; cases and deaths with seasonal distribution of notifiable diseases for all countries, and the numbers of medical personnel and hospital beds in many countries. Limited though this material undoubtedly is, it is a source of basic data for demographers, statisticians and epidemiologists, and is of some use in determining local and regional trends of mortality and morbidity. The regular appearance of the volumes is itself a stimulus to many administrations to make good the lacunae and irregularities in their own contributions.

SOME OTHER EPIDEMIOLOGICAL STUDIES

Cancer

The international study of 'cancer' began in the days of the League of Nations. It was then appreciated that as a chronic condition 'cancer' had certain features best examined by some coordinated international arrangement. For example, the alleged geographical and racial differences in the pathological and clinical types of 'cancers' demanded such an effort. Work was initiated to secure agreement on definitions, classifications and methods of reporting the techniques and results of diagnosis and treatment.

The first session of the WHO Expert Committee on Health Statistics in 1949 called for the continuation of the statistical work of the League of Nations, including the special study of the uterine cervix. Countries were urged to improve the accuracy of the diagnosis of 'cancer' and with deaths at least to check the finding by laboratory examinations. The value of classifying 'cancer' case and death returns in terms of the International Statistical Classifications was also emphasized by the committee as an essential preliminary to more accurate knowledge of world distribution. The Seventh Revision of the International Lists for this purpose incorporates an enlarged classification of neoplasms according to anatomical location of the lesion, its histological type and its stage. The comprehensive and heterogeneous character of 'cancers', allied to their chronicity, is against any early promise of satisfying results from the usual international statistical analyses.

An intensification of international efforts to secure better and fuller country data of 'cancers' is also being made by the system of National Committees on Vital and Health Statistics. These are urging the improvement of local statistical services and are themselves undertaking local studies. A further important campaign is persuading countries to establish cancer registration systems, particularly for the possibility these offer in following up cases after diagnosis and treatment.

A WHO consultant group convened in 1955 made a promising recommendation for strengthening the international investigation of 'cancers'. Acknowledging the prime importance of uniform definitions, nomenclatures and criteria of diagnosis, it recommended the establishment of international pathological reference centres to aid these procedures. Such centres, for which a pilot scheme is in preparation, would make standard pathological specimens available to interested local laboratories and workers. It is a technique appropriate for international use and likely to be valuable in many other conditions, such as malnutrition, chronic degenerative conditions, and parasitic conditions.

Malnutrition

As a subject jointly concerning the Food and Agriculture Organization and WHO, malnutrition has had several of its international epidemiological features examined.

The main nutritional disease with which WHO has been concerned has been kwashiorkor, resulting from an insufficient intake of proteins, essentially at weaning and post-weaning periods. FAO/WHO surveys of incidence carried out in Africa and Central and South America have shown that kwashiorkor is a widespread serious disorder. A study of its epidemiological features confirmed that, though there are certain local variations, it is fundamentally the same disease throughout the world, and that suitable cheap foods were needed locally to provide the essential proteins. WHO therefore made grants to 3 research centres in East Africa, Guatemala and South India to assist them in investigating the suitability of vegetable protein from different sources. An exchange of research workers was also arranged by WHO between these centres which has led to valuable coordination and the discovery of several promising local products.

Similar field investigations with marked epidemiological features have been organized by WHO, in association with FAO, into the social and environmental characters of endemic goitre and iodine deficiency, and the diet patterns associated with pellagra. More recently, as part of a programme of investigation into the aetiology of atherosclerosis and ischaemic heart disease, efforts are being made to secure the adoption of an international classification of atheromatous morbid conditions and to collect mortality data from different countries.

Accident Mortality

This is a subject of a different character in which international epidemiology is involved. Mortality from accidents is looming more largely in the mortality records of most countries. Examined as an international problem, the perennial difficulties are found. Country statistics are inaccurate. They follow no common model of definition in such matters as the cause of death, nature of injury, the circumstances leading to the accidents, or the agencies causing them.

A first mundane step was to urge the collection of more satisfactory records and, in the case of the cause of death, for these to be classified according to the International Lists given in the most recent revisions. These lists provide opportunities for giving two essential sets of facts: firstly, the external cause of the accidental death (the 'E' code) and, secondly, the nature of the injury (the 'N' code). Using such material WHO has published two studies covering transport and non-transport causes of accidents in its Epidemiological and Vital Statistical Reports. These provide useful data for the examination of deaths due to accidents as a general social problem of the times.

Following the revelation by a WHO Group that accidents are the leading cause of mortality in the age groups 1-19 years, being responsible for 30-40% of all deaths, a special epidemiological study of accidents to children has been sponsored in Europe.

SOME CONCLUSIONS

The few examples of international epidemiology given in this paper show that its scope, like that of national epidemiology, is widening. Epidemic diseases are no longer so prominent, while conversely the decrease of such conditions has thrown the more chronic and other disabilities into relief. The international study of these is under way, being aided by the growing willingness of countries to establish medical and health statistical services, and to adopt standard disease nomenclatures and classifications.

WHO, frequently in cooperation with the United Nations, is assisting through fellowships, seminars, visiting teams, and consultants. Epidemiologists and statisticians in many countries are thus being trained in the potentialities and limits of the survey, the small sample, the clinical trial, the field experiment, and the international reference networks.

The data from countries, improving slowly in completeness and accuracy, are being published in a series of WHO technical reports and journals. These are being used for a number of international epidemiological studies. In keeping with the times, such work is turning increasingly to an examination of morbidity records in addition to the traditional use of mortality data. Such morbidity material is being made more convenient and reliable for use in epidemiology.

The widespread programmes helping countries to improve their health and medical services are offering many opportunities for coordinated epidemiological studies. Distinct advances have thus been made in such subjects as the epidemiology of malaria, especially in relation to the factor of insecticide resistance; of tuberculosis in relation to immunological variation; of brucellosis; and of yaws.

International, like national, epidemiology has acquired invaluable benefit from the association of central and local institutions, and of official and non-official bodies in joint programmes. The epidemiological networks hitherto developed in the virus and enteric diseases and others, and now proposed in the new field of pathological reference, are composed of local institutions combining under the sponsorship of WHO to give certain essential services—international standards, and reference material.

However, there are difficulties to be noted. International epidemiology attempting to define the influence of complex social circumstances of physical and mental disease and defect in human populations is entering a province now recognizably important to all concerned with world welfare. It is the study of ecology itself—of the phenomena and natural laws of populations, whether they be human, animal, or plant. The growth of human populations and the impact on them of urbanization and industrialization are important factors in modern epidemiology.

Energy is the essential asset for a civilization to satisfy its desires for manufactured products, intensive agriculture, rapid communications, and urban agglomerations for habitation. Only speculation is possible on all the changes which the newest sources of industrial power—nuclear fission and fusion—are likely to bring. The newer industrialization spreading over the whole world is, indeed, in part the expression of another world phenomenon of epidemiological import—the rate of increase of human population in general and in particular regions. Not only is this population increasing rapidly but it is collecting in dense communities which, frequently, are inadequately administered from the sanitary, medical, or any other point of view. These populations will undergo changes at an ever increasing rate. Mixing will involve not only all immediate social consequences but more remote genetic sequelae, all of concern to the epidemiologist. Disease organisms are being similarly diffused more extensively and rapidly through all living communities, including those of man. Viruses, as well as humans, are becoming cosmopolitans more easily. It is not extreme to argue that the social and biological circumstances of the morrow will represent an ever more delicate epidemiological and ecological balance. Serious re-emergence of even some of the traditional scourges might occur if this balance were suddenly disturbed, or new or previously latent disease agents, especially the viruses, might become a challenge.

Charles Elton picturesquely gave the position when he said:

'Nowadays we live in an explosive world and, while we may not know where or when the next outburst will be, we might hope to find ways of stopping it or at any rate damping down its forces. I do not mean only nuclear bombs and wars, though these rank high on the list at the moment; there are other sorts of explosions. An ecological explosion is the enormous increase in numbers of some kind of living organism—it may be an infectious virus like influenza or a bacterium like bubonic plague, or a fungus like the potato disease, a green plant like the prickly pear, or an animal like the grey squirrel. I use the word "explosion" deliberately, to mean the bursting out from control of forces that were previously held in restraint by other forces. Ecological explosions differ from some of the rest by not making a loud noise and in taking longer to happen. That is to say they may develop slowly and they may die down slowly, but they can be impressive in their effects, and many people have been ruined by them, or died, or forced to emigrate.'[4]

Epidemiology must perforce now accept the world as its unit. The present scattered studies of international epidemiology become important when seen on this world stage. Local national investigation is still fundamental but each must be placed in the broader perspective of the international science. This is rapidly developing. The various tentative beginnings here described are being gathered to offer a guide to world health policies.

In future international health programmes epidemiology must inevitably move forward to more prominence. The phase of emphasis on direct assistance to countries will pass in due course as the majority of countries become self-contained in their essential requirements. International epidemiology is then likely to become even more useful. More numerous and vigorous medical services everywhere will seek technical data and means for technical cooperation in international epidemiological services. Murray has said: 'When the history of our time is written it will tell of the guidance of this destiny by virtue of the control of disease and the part played by world epidemiology based on international cooperation in the field of health.'[5]

REFERENCES

1. Gear, H. S. and Deutschman, Z. (1956): *Disease Control and International Travel*. Geneva: Wld. Hlth. Org.
2. *Publications of the World Health Organization* 1947-1957 (1958): Geneva: Wld. Hlth Org.
3. Gear, H. S. (1958): Canad. Med. Assoc. J., **78**, 704.
4. Elton, C (1957): *The Listener*, London, 28 March, p. 514.
5. Murray, L. H. (1957): Roy. Soc. Hlth. J., 77, 482.

BOOKS RECEIVED: BOEKE ONTVANG

Principles of administration applied to nursing service. Monograph Series, No. 41. By H. A. Goddard. Pp. 108. 20s. French and Spanish editions in preparation. Geneva: World Health Organization. 1958. Local Sales Agent: Van Schaik's Bookstore (Pty.) Ltd., P.O. Box 724, Pretoria.

Fat-free Cookery. By Alice Record Hooper. Pp. vii+112. 12s. 6d. Cape Town, London, New York and Toronto: Oxford University Press. 1958.

Lecture Notes on Midwifery. By T. F. Redman, T.D., M.B., Ch.B., F.R.C.S. (Edin.), M.R.C.O.G. Pp. viii+212. 12s. 6d. +8d. Postage. Bristol: John Wright & Sons Ltd. 1958.

Peripheral Nerve Injuries. By Ruth E. M. Bowden, D.Sc., M.B., B.S., L.R.C.P., M.R.C.S. Pp. viii+60. 30 Illustrations. 8s. 6d. net. London: H. K. Lewis & Co. Ltd. 1958.

Cunningham's Manual of Practical Anatomy. 12th Edition. Vol. 2. *Thorax and Abdomen*. Revised and edited by the late James Couper Brash, M.C., M.A., M.D., D.Sc., LL.D., F.R.C.S.Ed., F.R.S.E. Pp. xii+492. 237 Illustrations. 28s. net. Cape Town, London, New York and Toronto: Oxford University Press. 1958.

Hey Groves' Synopsis of Surgery. 15th Edition. Edited by Sir Cecil Wakeley, Bt., K.B.E., C.B., LL.D., M.Ch., D.Sc., F.R.C.S., F.R.S.E., F.A.C.S., F.R.A.C.S. Pp. viii+650. 190 Illustrations+13 Plates in colour. 37s. 6d. Bristol: John Wright & Sons Ltd. 1958.

A Doctor in Parliament. By Donald McI. Johnson. Pp. 288. 18s. net. London: Christopher Johnson Publishers Ltd. 1958.

Autopsy Diagnosis and Technic. 4th Edition. By Otto Saphir, M.D. Pp. xxiv+549. 80 Figures. 88.50. New York: Paul B. Hoeber, Inc. 1958.

No Man Despairs. The Story of a Plastic Surgeon. By Alan Mitchell. Pp. 222. 10 Illustrations. 16s. net. London: George G. Harrap & Co. Ltd. 1958.

Pathology for Students of Dentistry. 2nd Edition. By George L. Montgomery, T.D., M.D., Ph.D., F.R.S.E., F.R.F.P.S.(G.), F.R.C.P.E. Pp. vii+307. 134 Figures. 40s. net+1s. 9d. Postage Abroad. Edinburgh and London: E. & S. Livingstone Ltd. 1958.

OBSERVATION FROM THE SIDELINES OF MEDICINE *

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(*President, Cape Midlands Branch, Medical Association of South Africa*, 1958)

I am not sure whether it is a privilege or a penalty that a whole-time administrative medical officer has to watch the practice of personal medicine from a distance. Whichever is the case, he has a vantage point not enjoyed by those who are the actual players of the game. Although I know I expose myself to the jibe that 'Die beste stuurlui staan aan wal', I venture tonight to present to you some thoughts which arise as a result of my somewhat special relationship to the practice of medicine, particularly the practice of medicine in a hospital, such as we have in Port Elizabeth.

Dr. McLean

By law all of you have the right to conduct part of your practice in hospital; that is to say, your private patients may be admitted to hospital under your personal care. You are within the broadest of limits entitled to use hospital equipment and prescribe drugs. Nobody except perhaps the Medical Council has the right to question the standard of the treatment given to the patient. Actually these privileges flow from the rights of the patient, not those of the doctor. It is the patient who really has the right to be admitted and treated. He has the right to choose his own doctor for better or for worse and nobody can say him nay.

THE DIFFICULTIES OF THE OPEN HOSPITAL

The question I have to put to you tonight is this: 'Is it possible or advisable to continue this system in the face of the increasing difficulties which are associated with it?' I want first to make the position of the medical superintendent quite clear in this matter.

The law places the responsibility for the good order and government of a provincial hospital squarely upon the shoulders of the medical superintendent. He may lean upon his hospital board or his medical committee, but in the last analysis he is personally responsible for any decision he has to take. Bad administration is a reflection upon his ability and he must in all conscientiousness seek an answer to his difficulties.

He is in this position in relation to the present arrangement. He knows as an administrator that it would be infinitely easier to run his hospital with a whole-time staff. As a medical man, on the other hand, he may feel that it is in the best interest of medicine and of patients as a whole that practitioners should not be denied access to the hospital.

On the administrative side it should be obvious that the impact of an increasing number of doctors attending a hospital creates problems the magnitude of which is directly in proportion to the actual number of practitioners. These difficulties flow partly from the fact that, as a group, medical practitioners are highly individualistic, and partly from the fact that the increase in numbers demands an administrative structure to ensure some form of uniformity of procedure and the implementation of policy. Some people will consider that the term administrative structure is a euphemism for 'red tape'. May I counter this by saying that what the public calls 'red tape' is born when the whims, wishes and legal rights of a large number of people have to be dealt with with justice and, if possible, with expedition. And that is the problem of administration.

Let us take an example. The records of this hospital are in a shocking state, not because of any lack of system, but because the basic information of diagnosis and treatment is not entered into the records of the large majority of our patients. Recently we had a rather high-level argument about the relative merits of various types of high-voltage X-ray therapy machines, and when my department asked me for information regarding the number of cases of malignant disease admitted to hospital, I had to admit with shame that this information was not available. In passing, I recall one practitioner saying at a meeting that he was not prepared to enter the case diagnosis on a record because this was confidential information. Well, if the legitimate request (as I consider it) to have case records completed is regarded as 'red tape' then the practitioner's view that such information need not necessarily be supplied does immediately raise the issue whether the right to practise in hospital can be quite untrammelled and free from all responsibility to the Administration.

A hospital bed today is regarded as a commodity—something to be fought for and which can be obtained by false pretences or even stolen. Here again, surely the Administration can be excused if it demands and obtains by administrative means—'red tape' if you like—some standard of behaviour in this respect which is not governed by the laws of the jungle.

Now these are only two examples of problems associated with the administration of a large open hospital. There are others, but I wish to deal briefly with matters more intimately medical.

Much has been made of the possibilities of inferior medical treatment where there is no control of the standard of hospital medical practice. I am not at all sure that this danger is a great one, any more than our duty to train interns and other medical practitioners is to be regarded as an unacceptable risk so far as the patient is concerned. It will be argued that the provision of free drugs and access to specialized instruments is an invitation to the practitioner to adopt procedures beyond his knowledge or capabilities. In this case the medical outlook might be summarized as follows: 'Give us the tools and we will finish the job.'

I think perspective in this matter can be restored if it is realized that the whole practice of medicine is permeated with elements of risk which have to be accepted if treatment is to progress. It is only when these risks are accepted that knowledge is spread among the general body of practitioners. A highly skilled surgeon entering a new field exposes his patient to the same type of danger as the humble practitioner who is making himself competent in the ordinary activities of his profession. This is the reason why I personally feel that the principle of the open hospital is a good one. If we as an Association insist upon a policy of open hospitals we do so because we feel that it would be detrimental to medical science to contemplate the emergence of a large group of medical low-brows or helots fated always to carry out the menial tasks of medicine.

THE PRACTITIONER'S DUTY TO THE HOSPITAL

What I do not accept is that the hospital is to be used primarily as an aid in building up a successful practice and that the conditions of fierce competition which prevail outside the hospital should be allowed to influence the proper administration of that hospital.

These are some suggestions I should like to make in this regard. It seems to me that, fundamentally, the approach of many practitioners to the hospital is wrong. I consider that the approach of the practitioner should be that of a student, which implies that in the first place due emphasis is placed upon the academic side of medicine. A hospital is a place in which you can renew your acquaintance with the natural history of disease. You are protected by the skilled treatment and observation of your patient by the nursing staff—a protection you do not normally enjoy under conditions of domiciliary treatment. You have facilities for accurate diagnosis which enable you to do without expensive hit-or-miss or blunderbuss treatment.

I do not doubt that modern therapy and surgery have changed disease patterns out of all recognition in the last 20 years: but there are still many self-limiting conditions, and it seems that the

* Presidential Valedictory Address, Port Elizabeth, 29 January 1959.

colossal wastage of drugs which is so characteristic of our hospital practice is due primarily to our failure to recognize that there are conditions uninfluenced by drug therapy or for which surgery is an unnecessary adventure. We cannot avoid the impact of the high-pressure salesmanship of the manufacturing chemist, and it would be wrong to do so. I submit, however, that the hospital is the place to remember the word of St. Paul: 'Prove all things. Hold fast to that which is good.'

Cooperation with the Hospital Authorities

Another approach of the practitioner which is fundamentally wrong is his attitude towards the Provincial Administration. I know it is a popular public sport to attack government bodies. It is said that unjust criticism is necessary if democracy is to flourish. But the position of the practitioner in relation to public hospitals is somewhat different from that of the ordinary taxpayer. First of all, he is making a portion of his living out of a public utility supplied by the Administration. He is responsible for the expenditure of a large part of the funds that are used for the maintenance of our hospitals. Surely then it can be no revolutionary idea to suggest that the administration and the profession are complementary elements in the scheme of providing hospital service for the public. In other words, it seems to me that a partnership is a preferable *modus operandi* to the existing spirit which regards the Administration as a stupid, inert and bankrupt body.

If you accept this notion of partnership, you accept a share in the government of the hospital not so much through your representatives on the board and medical committee, but through personal responsibility in your daily relationships with the hospital. Where a large number of doctors are engaged in hospital practice, the principle of the greatest good for the greatest number must prevail. There is no room for the selfish individualist, who on his own can wreck any effort to grease the wheels of administration.

Self-discipline

Seemingly to you petty things, such as visiting patients during mealtimes and failure to write out orders explicitly, are of considerable importance to the nursing staff in the treatment of your patients.

I am suggesting that some form of discipline is required of practitioners. The question arises whether this should be a self-discipline or a form of discipline reinforced by sanctions. And here I must place the ball squarely at your feet. The system of the open hospital cannot grow, and may not continue, unless it is made a success both administratively and financially and continues to be in the best interests of the public.

THREATENED CHANGES

Any change that takes place will arise from the pressure of public opinion and will inevitably mean a further intrusion of the State into the activities of medical practice. In the past similar changes have occurred in the face of opposition from the medical profession, when it was too late materially to influence the process. We unfortunately do not lead public opinion. We are very much like the tin can tied to the tail of a dog. We make a great noise, but are nevertheless dragged along behind public opinion because of our own inertia in regard to the education of the public.

The following quotation is taken from the current issue of *The Modern Hospital*. Although the substance refers mainly to the question of State control of hospitals, which we already have, it illustrates the point in regard to the education of public opinion and the possibility of further State intrusion into hospital practice in South Africa.

'We can readily believe that there is room for improvement in the hospital field, as our hospital leaders rightfully insist. We can have full faith that hospital people themselves are best equipped to bring about these improvements. Progress most certainly will not be realized through public regulation of non-existent failings. It will come only as the hospitals begin to fight vigorously for their continued freedom.

'How can this struggle be conducted? It seems clear that there must be far more intensive and forthright efforts at public education than any that have been essayed in the past. On the other hand, there is good reason to ask whether eleventh-hour education, even of the most valiant nature, can of itself reverse the rising clamour for State regulation.

'There is much evidence that the people are convinced of the need of tighter supervision of hospital costs and the use of hospitals. There is no evidence that the people prefer State to voluntary controls.

'What can be done to demonstrate to the public that hospitals and the profession have their own affairs well under control? Is there a need for internal 'czars' such as saved baseball and the motion-picture industry from the overweening paternalism of government? Should there be volunteer central bodies to review the economic consequences of hospital and medical practices? Can there be new screening procedures for admission of patients, for the use of hospital services, for hospital expenditures?

'There is virtually no reason to believe that such procedures will have measurable effects on rising hospital costs and prepayment rates. The public psychology is such, however, that uneasiness breeds in the absence of apparent controls—of visible "check and balances"—affecting functions that are vital to the public welfare.

'Now the people are demanding controls in the hospital field, and their elected representatives are listening respectfully. Which kind of control shall it be; voluntary or compulsory?'

CONCLUSION

My plea to you tonight is to remember that the privilege of free access to the hospital is a valuable one, but that it requires a much more enlightened appreciation of that privilege in order to protect it.

Two recent developments to my mind deserve your earnest consideration and support. The first of these is the system of sessional appointments, which have replaced interns at this hospital. Appointment to one of these posts places the incumbent in the position of the student, which I advocated earlier on. These appointments should be made available to as many suitable practitioners as is administratively possible within the limits of the amount of work to be done, and as far as possible should be allowed to rotate. The second development which I welcome is the creation of the General Practitioners' Group of the Association. In this we have the possibility that this organization will assist in sorting out some of my difficulties by endeavouring to preserve the correct standard of professional approach to hospital practice.

DIE LIEFDADIGHEIDSFONDS : THE BENEVOLENT FUND

Met hartlike dank word die volgende skenkings gedurende die maand Januarie 1959, erken:
The following donations during January 1959 are gratefully acknowledged:

Votive Cards in Memory of:

Prof. M. C. Botha *by* Dr. J. C. Anderson; Dr. J. Weinberg *by* Dr. Phyllis A. Don; Ivan Acutt *by* Dr. J. M. C. Henderson; Mr. E. C. Mungo-Thompson *by* Dr. C. A. Ovendale, Dr. L. R. Tibbit, Dr. C. L. J. Coulson, Dr. F. E. Bamford, Dr. D. H. Biggs, Dr. T. H. Whitsitt, Dr. H. A. Kalley, Dr. S. H. Cohen, Dr. N. M. Lund, Dr. R. B. Peckham, Dr. C. C. Akerman, Dr. J. R. Reznek and Dr. D. F. Symonds; Mrs. M. Dunlop *by* Dr. R. B. Peckham.

Total Received from Votive Cards £21 7s. 0d.

Services Rendered To: Dienste Gelewer Aan:

Mr. A. Katz *by* Dr. A. Landau.
A Pro Deo Patient *by* Dr. R. MacKenzie.
Mrs. S. Schewitz *by* Mr. Joel Cohen.
Mari, dogter van Dr. M. Swart *deur* Drs. J. Lee en I Gordon.

Total Received for Services Rendered £12 12s. 0d.

Donations:

Drs. G. C. Crijwagen, F. K. te Water Naudè, R. Lane Forsyth, J. P. de Villiers, C. H. de la Harpe, J. H. Symington, J. R. Saunders, J. P. Grieve, S. S. Hoffman, W. Fabian, W. R. Phillips, D. L. Ranking, C. Akerman, E. C. Crichton, W. I. Robertson, C. P. J. Bester, W. J. Naude, V. A. v. d. Hoven, N. A. A. van Buuren C. A. V. Ovendale J. F. Rivers-Moore, C. C. Haupt, J. R. Reznek

J. D. M. Barton, J. R. Clacey, B. C. Freyer, N. McL. Campbell, C. R. Hallot, A. T. F. Maske, M. G. Woolff, J. Morris, C. Kaplan, J. D. Napier, E. v. Wyngaard, P. J. Grobler, L. M. Cohen, C. E. Murray, H. M. Thompson, F. L. Galcut, A. R. Bain, B. J. Brewitt, E. F. Lazarus, F. Krone, T. S. Eddy, L. C. Goument, C. Zaayman, P. T. Hauff, J. M. Calitz, A. S. Nethercott, D. G. Cowie, F. J. Bennett, H. R. Esser, J. S. Barnes, N. Shear, L. J. van Wyk, M. H. Campbell, H. F. Snyman, H. O. Hofmeyer, P. H. Kampfraath, H. M. Fyvie, J. D. Lumsden, C. C. Akerman, C. L. J. Coulson, M. J. F. Davis, J. P. Cronje, N. H. Helman, R. B. Peckham, T. M. Adnams, M. T. S. Conradie, R. Resnekov, I. Goldberg, R. McDonald, P. R. Malherbe, W. J. Perkins, J. de V. Meiring, G. W. Moggridge, N. B. H. Veldsman, M. E. Schiele, N. M. L. Lund, R. J. H. McMahon, C. L. Wicht, D. S. Gardener, T. H. Whitsitt, R. Lipschitz, D. J. Cilliers, C. L. L. Murray, M. G. Erasmus, K. H. Dyke, D. H. Biggs, R. Cowley, C. C. Brown, D. A. Hoffman, J. C. Brown, A. I. Pitcher, P. S. Bell, R. Glasser, C. L. Grobler, W. B. Kohn, R. P. Stafford, B. S. Porter, J. E. Rea, J. F. G. Haupt, N. K. Pein, E. Cassim, P. N. Smith, H. Pogrund, P. A. Clarke, W. Blignaut, W. R. Hackman, and F. E. Bamford.

	£	s.	d.
	76	6	6
Proceeds from Congress of Association of Physicians	59	9	5
Total Donations	£135	15	11

Grand Total £169 14s. 11d.

42ND MEDICAL CONGRESS (M.A.SA.), EAST LONDON, 27 SEPTEMBER—3 OCTOBER 1959: AIR SERVICES

42STE MEDIESE KONGRES (M.V.S.A.), OOS-LONDEN, 27 SEPTEMBER—3 OKTOBER 1959: LUGDIENS

It has been brought to the notice of Congress officials that doctors are concerned about the air service arrangements to and from East London during the 42nd Congress, as the East London airport is at present under reconstruction. It has been ascertained, however, that the main runway at Collondale Airport, East London, is to be open for normal air traffic by July 1959.

E. McCabe, M.B., Ch.B.
Hon. Organizing Secretary

Die aandag van Kongres-beamptes is gevestig op die feit dat dokters besorg is oor die reëlings insake lugdiens na en van Oos-Londen gedurende die 42ste Kongres aangesien die Oos-Londense lughawe op die oomblik onder rekonstruksie is. Dit is egter vasgestel dat die hoof aanloopbaan by die Collondale-Lughawe, Oos-Londen, oopgestel sal word vir normale verkeer omstreeks Julie 1959.

E. McCabe, M.B., Ch.B.
Ere-Organiserende Sekretaresse

J. S. DU TOIT MEMORIAL FUND: J. S. DU TOIT-GEDENKFONDS

The object of the Memorial Fund is to provide assistance for the sons or daughters of deceased colleagues who might wish to study medicine but who have been handicapped in achieving this object by the death of the parent who would normally have supplied their needs.

Die doel van die Gedenkfonds is om hulp te verleen aan die seuns of dogters van kollegas wat oorlede is, wat 'n mediese kursus sou wou volg, maar wat dit nou nie kan doen nie omdat die ouer wat hulle sou help oorlede is.

	£	s.	d.
Previously acknowledged: Voorheen erken	175	5	0
Dr. J. K. Bremer	5	5	0
Dr. J. K. de Kock	5	0	0
Mnr. Ozinsky		10	0
Dr. C. D. Brink	5	5	6
Dr. D. J. Roux	5	5	0
Dr. J. Abelsohn	2	2	0
Dr. E. C. Greenfield	2	2	0
Dr. F. W. F. Purcell	3	3	0
Dr. J. S. Loubser	5	5	0
Total as at 28 February 1959	£209	2	6
Totaal soos op 28 Februarie 1959			

UNIVERSITY NEWS: UNIVERSITEITSNUUS

NEW BUILDING FOR RESEARCH

The new £52,000 building for research in the Department of Medicine, University of Cape Town, was officially opened by Dr. S. M. Naudé, President of the South African Council for Scientific and Industrial Research, on 6 March 1959. This building was erected from the proceeds of an appeal fund which was subsidized by the Department of Education, Arts and Science.

In thanking all those who contributed towards the successful culmination of this great project, Prof. J. F. Brock, Professor of Medicine at the University of Cape Town, specially mentioned the Cape Provincial Administration with its hospitals department, who made the undertaking possible; the Council of the University of Cape Town for their great encouragement and for making it possible to set up the appeal fund; Major P. V. G. van der Byl, the chairman of the appeal fund; the donors; the architect, Mr. F. L. Sturrock and the builder, Mr. G. A. Cocks, and the Department of Education, Arts and Science who contributed the £ for £ subsidy.

In his opening address Dr. Naudé said: 'the community must accept the responsibility of making available to our Universities and other research institutions the necessary facilities to enable our creative thinkers and intellectual leaders to give expression to their scientific curiosity.' He continued by saying: 'the existence of this building is proof of the fact that many persons and organizations already appreciate and accept their responsibility in this respect,' and with the following words: 'I look upon this building as a symbol of mutual cooperation and trust,' he formally declared the building open.

The appeal fund was approved and supported by the University Council because research in the Department up to 1956 has led to generous offers from within South Africa and from the USA for additional running costs for expansion of the programmes. Such expansion was impossible without new accommodation.

Research in the Department up to 1957 was supported by the University of Cape Town through its Senate Research Committee, including the Herman and Fourcade Bequests; the Council for Scientific and Industrial Research through the Clinical Nutrition Research Unit and *ad hoc* projects; monies donated to the University by the Williams Waterman Fund for the Combat of Dietary Diseases, New York; the National Heart Institute, Public Health Service, USA; the Food and Nutrition Board, National Academy of Sciences—National Research Council of the United States of America; the South African Mutual Life Assurance Society of Cape Town; the South African Fish Oil Producers Association (Pty.) Ltd. of Cape Town; and Irvin and Johnson Ltd. of Cape Town.

During 1957 and 1958 the Council for Scientific and Industrial Research approved two further research groups within the De-

partment: (1) The Endocrine Research Group, and (2) the Cardiovascular Pulmonary Research Group. These groups have been given separate and continuing budgets by the C.S.I.R. In addition *ad hoc* support on an annual basis has been given by the C.S.I.R. to other projects, especially haematology and—within the Nutrition Unit—renal disease and porphyria; also to endocrine and cardiovascular pulmonary research before their recognition as research groups. These two projects, supported *ad hoc* by the C.S.I.R. have also attracted donations from the Cape Town City Corporation, the Lady Tate Memorial Fund and the Wellcome Foundation.

The new research building was devised to meet the needs of medical science for the next 20 to 25 years. Its features include modern air conditioning for humidity and temperature for the animal room, an air conditioned instruction room and a large cold storage where specimens can be preserved at −15°. It has a laboratory where medical research can be done at 4°, and the building also has two laboratories for radio-isotope work.

The constitution of the Appeal Fund Committee was as follows: Major P. V. G. van der Byl, M.C., M.P. (Chairman); the late Dr. J. S. du Toit, Medical Association of South Africa; Mr. W. J. B. Slater, President, Rotary Club of Cape Town; Dr. M. S. Louw; Mr. Isidore Cohen; Mr. A. D. Wassenaar; Mr. C. S. Milford; Mr. T. A. Murray; Mr. F. Powell; Mr. S. R. Back; and Messrs. F. C. Robb, C. S. Corder, and A. F. Stephen, nominated by the Council of the University of Cape Town.

After the building was declared open by Dr. Naudé, the visitors were conducted through its various departments where they saw a magnificent display of research work, completed and in progress.

Among those present were the Minister of Education, Arts and Science, Mr. J. J. Serfontein; ex-chief Justice van de Sandt Centlivres, Chancellor of the University of Cape Town; Mr. J. P. Duminy, Principal and Vice-Chancellor of the University; Major P. V. G. van der Byl, M.P.; Mr. W. Duncan Baxter, Chairman of the Council of the University; Dr. J. du Pré le Roux, Secretary for Health; Mr. W. J. B. Slater, Secretary, Cape Provincial Administration; Prof. S. F. Oosthuizen, President of the South African Medical and Dental Council; Dr. A. W. S. Sichel, Chairman, Head Office and Journal Committee (M.A.S.A.), Dr. R. L. Retief, Director of Hospital Services, Cape; Prof. B. Bromilow-Downing, Dean of the Faculty of Medicine, University of Cape Town; Prof. M. Drennan; Prof. F. Forman; and many other members of the staff of the Medical School of the University of Cape Town.

PASSING EVENTS : IN DIE VERBYGAAN

Research Forum, University of Cape Town. A meeting of Research Forum will be held on Tuesday 17 March at 12 noon in the large A-floor lecture theatre, Groote Schuur Hospital, Observatory, Cape. Dr. J. A. H. Campbell will speak on 'Hepatic, pancreatic, and vessel changes following lower nephron nephrosis in rats'. All interested are invited to attend.

* * *

Sandoz Limited. It is regretted that in the report of the Hon. Secretary of the Cape Town Sub-group on the First Scientific Congress of the Association of Physicians of South Africa, published in the issue of the *Journal* of 7 February (**33**, 124), the name of Sandoz Limited was omitted from the list of pharmaceutical firms who supported the Congress. This firm gave generous support to the Congress both by exhibiting and in financial aid.

* * *

Dr. Phyllis Knocker, B.Sc. (Hons.), M.Ch. (Rand), F.C.S. (S.A.), F.R.C.S., has resigned from her full-time post in the surgical division of the Johannesburg General Hospital and the University of the Witwatersrand Medical School and has commenced private practice as a surgeon at first floor, Princess Nursing Home, Esselen Street, Johannesburg. Telephones: Rooms 44-7685, 45-3466; residence 42-4865. These numbers are not listed in the current Telephone Directory.

Dr. Pincus Catzel, M.B., B.Ch. (Rand), M.R.C.P. (Edin.), D.C.H., R.C.P. & S. (Eng.), has commenced practice as a specialist in the diseases of children at 404 U.B.S. Building, Klerksdorp. Telephones: Rooms 1252, residence 1079.

Dr. Pincus Catzel, M.B., B.Ch. (Rand), M.R.C.P. (Edin.), D.C.H., R.C.P. & S. (Eng.), praktiseer nou as kinderarts te U.B.S.-Gebou 404, Klerksdorp. Telefone: Spreekkamer 1252, woning 1079.

* * *

Cape Province Hospital for the Treatment of Alcoholism. The Park Road Hospital, cor. Park and Milner Roads, Rondebosch, Cape, will be officially opened by His Honour Dr. J. H. O. du Plessis, the Administrator of the Cape Province, at 3.15 p.m. on Tuesday 17 March. The Hospital will be open for inspection from 2.30-5.30 p.m. Interested doctors are invited to attend the opening.

Kaapprovinsie: Hospitaal vir die Behandeling van Dranksugtigheid. Die Parkstraat-Hospitaal, hoek van Park- en Milnerstrate, Rondebosch, Kaap, sal amptelik geopen word deur Sy Edele dr. J. H. O. du Plessis, die Administrateur van die Kaapprovinsie, op Dinsdag 17 Maart om 3.15 nm. Die Hospitaal sal oop wees vir inspeksie van 2.30-5.30 nm. Belangstellende dokters word uitgenooi om die opening by te woon.

PHARMACEUTICAL NEWS : FARMASEUTIESE NUUS

SOUTH AFRICAN DRUGGISTS LTD.

An announcement of general interest to the pharmaceutical trade was made when Mr. Wolf Heller (Chairman) mentioned that Mr. Aaron Kramer, M.P.S., was to join the Board of South African Druggists Limited in a full-time capacity. Mr. Kramer assumed his new position at the Johannesburg headquarters of the Heller Organization at Zambesi House, von Wielligh Street, on 1 March 1959.

Mr. Kramer is an elected member of the South African Pharmacy Board and was secretary of the Pharmaceutical Society in an honorary, part-time capacity for 10 years from the time of its inception in 1946. He has recently been President of the Society for 2 successive years. He has also been Chairman of the Council for the Pharmaceutical Trade and Industry.

It is learned that while Mr. Kramer's decision to join South African Druggists involves the disposal of his interest in the pharmaceutical distributing and manufacturing concern, Pharmapak Company (Pty.) Limited, which he established in 1939, that business will carry on as before and Mr. Nat Kramer continues his association with it as a Director.

BAIRD & TATLOCK (LONDON) LTD.

Mr. J. E. C. Bailey, C.B.E., Chairman and Managing Director of Baird and Tatlock (London) Ltd. and Hopkin and Williams Ltd. left the United Kingdom on 1 February for a short tour of Uganda, Kenya, Northern Rhodesia, Southern Rhodesia, and South Africa. He will visit the Company's branches, agents and representatives in these countries to discuss general matters relating to the export of scientific equipment and chemicals.

NEW PREPARATIONS AND APPLIANCES : NUWE PREPARATE EN TOESTELLE

EQUANITRATE

Wyeth Laboratories (Pty.) Ltd. introduce Equanitrate for the treatment of angina pectoris and supply the following information:

The product is a combination of pentaerythritol tetranitrate and equanil (meprobamate, Wyeth) marketed under the trade name of Equanitrate.

Action. Equanitrate provides effective coronary artery vasodilation and control of anxiety. Pentaerythritol tetranitrate is an

active coronary vasodilator which is closely related to glyceryl trinitrate, yet it releases nitrate slowly for a prolonged period of time. Equanil is a compound capable of relieving anxiety and tension. It has a selective action on the thalamus and is an effective skeletal muscle relaxant.

Indications. In patients with angina pectoris anxiety symptoms are often prominent. Therapy with Equanitrate provides better control of anginal pain than with Equanil or pentaerythritol tetranitrate. Exercise electrocardiographic tests have been found to be more normal with Equanitrate than with either of the single agents. Equanitrate is useful for prophylaxis of pain in angina pectoris and coronary insufficiency. It has proved particularly useful in controlling the anxiety that often accompanies and increases the symptomatology of angina pectoris.

Dosage. Individualization of dosage is required for maximum therapeutic effect. One to 2 tablets taken before meals and at bedtime is the usual dose.

Side-effects. Side-effects due to Equanitrate are minimal and are limited to those produced by meprobamate and pentaerythritol tetranitrate. Pentaerythritol tetranitrate may infrequently cause nausea and mild headache which usually disappear after 4 or 5 days of therapy. Drowsiness may occur, particularly early in the course of meprobamate therapy, but as a rule disappears as dosage is continued. Side-effects due to meprobamate are uncommon and usually become apparent after the first few doses. The only serious side-effect is the rare occurrence of an allergic reaction, characterized by a pruritic urticarial or erythematous maculopapular rash, when the drug should be discontinued. Acute, nonthrombocytopenic purpura has also been reported.

Contraindications. Like all nitrates, Equanitrate should be given with caution in glaucoma.

Packing. Bottles of 50 tablets.

THE KUHLMANN CERVICAL TRACTION APPARATUS

Medical Distributors (Pty.) Ltd. of 252 Jeppe Street, Johannesburg, in introducing the Kuhlmann Traction Apparatus, a portable appliance for treatment of the cervical spine, supply the following information:

Traction is applied on a pneumatic principle by closing a valve and pumping a bulb in a gentle rhythmic manner, similar to a baumanometer. There is a manometer included to measure the actual poundage exerted on the spine. Traction is applied and released smoothly and slowly so that the possibility of nipping nerves is eliminated.

The halters are comfortable and have sufficient adjustment to fit all shapes of heads and always support the occiput. The apparatus is simple to apply and may be used in any of the standard positions, sitting, lying down or even standing.

For further details of this apparatus, please apply to the sole South African distributors, Medical Distributors (Pty.) Ltd., P.O. Box 3378, Johannesburg or P.O. Box 3077, Cape Town.

DIE KUHLMANN-APPARAAT VIR STREKKING VAN DIE NEK

Medical Distributors (Eiens) Bpk. van Jeppestraat 252, Johannesburg, verskaf die volgende informasie by die aankondiging van die Kuhlmann-apparaat vir strekking van die nek—'n draagbare toestel vir behandeling van die nekwerwelkolom.

Strekking word toegepas op 'n pneumatiese basis deur 'n klep te sluit en 'n bal te pomp op 'n sagte ritmiese manier soos by die gebruik van 'n baumanometer. 'n Manometer word ingesluit om die presiese pond-gewig te meet wat op die werwelkolom uitgeoefen word. Strekking word dan stadig toegepas en opgehef sodat dit die moontlikheid uitsluit om senuwees te knyp. Die halters is gerieflik en kan so verstel word dat hulle by alle vorms van koppe pas en altyd die agterkop ondersteun. Dit is eenvoudig om die apparaat te gebruik en dit kan in enigeen van die standaardhoudings van sit, lê, en selfs staan, gebruik word.

Verdere besonderhede oor hierdie apparaat kan verkry word van die enigste Suid-Afrikaanse verspreiders, Medical Distributors (Eiens) Bpk., Posbus 3378, Johannesburg en Posbus 3077, Kaapstad.

STAPHORAL

Saphar Laboratories Ltd. introduce Staphoral and supply the following information:

Staphoral is a purified staphylococcus toxid for sublingual administration *via* the nasal or buccal mucosa. It is intended for both prophylactic and therapeutic use against staphylococcal infections. Published work has shown that the rise in antitoxin titre of the blood after absorption of Staphoral *via* the mucosa is as great as that obtained by parenteral immunization. Sublingual administration obviates the unpleasant local and systemic reactions which are produced by immunization *via* the parenteral route and consequently provides a convenient means of prophylactic as well as therapeutic immunization.

Staphoral will be of great interest in surgery for its prophylactic use before major elective surgery as well as its use in burnt patients and in patients who have to be hospitalized for a considerable period. The prophylactic use of Staphoral should also prevent infection by antibiotic-resistant strains of staphylococci following post-operative broad-spectrum antibiotic therapy. The use of Staphoral in dermatology is indicated in the treatment of furunculosis, recurrent carbuncles, hydroadenitis, pustular acne and other staphylococcal infections of the skin and subcutaneous tissues. In gynaecology and obstetrics immunization of the pregnant woman in the last trimester of pregnancy will protect the mother against mastitis and is expected to produce a significant antibody titre in the child. In otorhinolaryngology Staphoral therapy is indicated in subacute and chronic infections of the middle ear as well as sinusitis. The use of Staphoral in internal medicine will be of value in the treatment of bronchitis as well as in the prophylactic treatment of elderly patients and patients who normally suffer from chronic respiratory diseases, particularly in times of influenza epidemics.

Staphoral is available as drops for sublingual administration in infants and young children, and as sublingual tablets for older children and adults. The course of treatment consists of 1 tablet (or 10 drops) twice daily for 15 days.

Staphoral is available in 1 oz.-dropper bottles and bottles containing 30 tablets, both of which contain the full course of therapy.

Further literature and information can be obtained from the makers, Messrs. Saphar Laboratories Ltd., Stephen Road, Ophirton, Johannesburg, or from their distributors, Messrs. Keatings Pharmaceuticals Ltd., P.O. Box 256, Johannesburg.

ANTIPHEN

Maybaker (S.A.) (Pty.) Ltd. wish to announce that Anthiphen brand dichlorophen is now available in a packing of 18 tablets (0·5 g.) in replacement of the original packing of 12 tablets (0·5 g.), and they supply the following additional information: Dichlorophen is indicated for the eradication of tapeworm infestation in humans.

Recent clinical experience has shown that the dose of Anthiphen may be increased without the production of toxic side-effects. It is recommended that a single oral dose of 6 g. (12 tablets) should be given to adults on each of 2 successive days. Children may be given 2-4 g. (4-8 tablets) on each of 2 successive days. Alternatively, adults may be given 2-3 g. (4-6 tablets) 3 times in 24 hours. If this dosage is adopted, children should receive 1-2 g. (2-4 tablets) 3 times in 24 hours. If mass treatment of adults is envisaged, a single dose of 6-9 g. (12-18 tablets) may be given.

Side-effects with Anthiphen are few and are seldom sufficiently serious to inconvenience the patient but, occasionally, abdominal discomfort, colic, and diarrhoea may be observed.

BOOK REVIEWS : BOEKBESPREKINGS

LUMBAR DISC LESIONS

Lumbar Disc Lesions—Pathogenesis and Treatment of Low Back Pain and Sciatica. 2nd edition. By J. R. Armstrong, M.D., M.Ch., F.R.C.S. Pp. xii+244. 60 figures. 45s. net+2s. 1d. postage abroad. Edinburgh and London: E. & S. Livingstone Ltd. 1958.

This book is not for the orthopaedic surgeon struggling with a large back-ache clinic; nor is it for the undergraduate student

wishing to learn, amongst many other things, about back-ache; nor is it for the practitioner, who will find it no help in the treatment of the every-day problem of the sore back; nor for the manipulator, who will not find much support here.

For the disc operator, it will, however, be a Bible, which will give him moral and technical support.

J.M.G.

ABORTION

Abortion in the United States. A Conference Sponsored by the Planned Parenthood Federation of America, Inc. at Arden House and the New York Academy of Medicine. Edited by Mary Steichen Calderone, M.D., M.S.P.H. Pp. vii+224. $5.50. New York: Paul B. Hoeber, Inc. 1958.

Reporting on a unique Arden House Conference, this book provides a sizeable body of current factual information on the nature and extent of illegal abortion as well as its relationship to the practice of therapeutic abortion in the United States. A discussion of the laws and extent of abortion in the Scandinavian countries, Japan, Germany, USSR, and Finland is also included.

Although this is a verbatum report of the conference, the book is set out in a very logical and readable fashion. The many comparative statistics of the different hospitals, however, makes the book dull in parts. As is the case with most conferences, the many questions put to the speaker sometimes distract the attention from the main topic of the address and this is sometimes confusing to the reader. In the final chapter of the book the delegates try to find some solution to this major sociomedical problem of illegal abortion and suggestions such as sex education, consultation centres for women seeking abortion, increased availability of contraceptive services and revision of abortion laws, are made.

After digesting this book it makes us wonder why we as medical men in South Africa are so passive in the fight against this demon which is destroying the lives and happiness of so many women. Is it not time for us to probe into this matter and also have conferences, rather than leaving the whole problem to the prosecutor?

R.W.A.N.

ELECTROCARDIOGRAPHY

Biophysical Principles of Electrocardiography. Vol. I. By Robert H. Bayley, M.D. Pp. xvi+237. Illustrations. $8.00. New York: Paul B. Hoeber, Inc. 1958.

This book requires careful study. The author has contributed greatly towards current terminology used in electrocardiography. Unfortunately the terms are often used in a ponderous fashion and without adequate explanation. Basic concepts of electrocardiography are given in words and formulae of which the meaning is not always clear. The use of rather involved mathematical concepts which presuppose a fairly extensive background in physics and mathematics causes a certain amount of frustration in reading, particularly when practically no reference is made to original publications. Where the approach to the electrocardiogram is such a fundamental one, as is attempted in this book, and references are only to the basic articles, one has been surprised to find that the work of W. H. Craib on the distribution of electric currents generated in a muscle strip immersed in a volume conductor, is not even mentioned. There can be little doubt that this work formed the basis of the monumental work of Wilson at a later date.

The most useful chapters in this book, and those which will repay thorough reading and re-reading, is chapter 6 on the infarction pattern with broad QRS complexes, chapter 7 on the regression wave and its properties, followed by chapter 8 on the primary and secondary T-wave changes in various conditions.

This is a most important book for advanced students on electrocardiography, but cannot be recommended for the beginner.

A.J.B.

DIAGNOSTIC HAEMATOLOGY

Diagnostic Laboratory Hematology. 2nd edition, revised and enlarged. By George E. Cartwright, M.D. Pp. xi+250. 33 figures. $6.75. New York and London: Grune & Stratton, Inc. 1958.

In its original form this book was written for the benefit of students, interns and general practitioners.

The 2nd edition, however, includes several more elaborate and esoteric techniques, the bulk of which are unlikely to be used outside properly equipped laboratories. This basic change has given the work a fatal ambiguity of character, exemplified on the one hand by the relative prominence given to a technique such as platelet counting using phase contrast microscopy, and on the other by the omission of any account of the techniques needed to make satisfactory blood smears using slides rather than the cover glasses which the author favours. For the student or private practitioner too much is offered; for the routine laboratory worker the book is not really adequate and suffers from the grave disadvantage of being written in what the author himself terms a 'cook book' fashion. The individual techniques described are sound and the book is well produced but at its price it represents poor value compared with works of similar scope emanating from the British schools of haematology.

N.W.

CHANGE OF SEX

Homosexuality, Transvestism and Change of Sex. By Eugene de Savitsch, M.D. Pp. viii+120. 12s. 6d. net. London: William Heinemann Medical Books Ltd. 1958.

The author wrote this book to satisfy 'numerous enquiries' about change of sex operations. The regular publicity given sex change in the sensational press is evidence that a widespread public interest in the matter exists. The change of genital sex is always from male to 'female'; the external genitalia are amputated. It is debated among surgeons interested in this matter whether construction of an artificial vagina is ever justified. While it may satisfy the patient psychologically, the cavity constructed, whether lined by skin or intestine, cannot be used for intercourse. Women who seek sex change cannot be offered correspondingly helpful surgery. Some surgeons may remove the uterus and ovaries in male-oriented women, but none claim to be able to provide an adequate penis.

The author becomes less scientific when discussing the more subtle matter of the personality make-up of those persons who seek sex change. Dogmatically he makes the dubious assertion that homosexuality is an aberration of nature and not of conduct, that 'the trouble resides primarily in the union of the chromosomes'. Committed to this narrowly genetic belief, the argument is then advanced that the surgeon, as it were, is a right and proper person to correct 'the unbearable situation for someone who was just born the wrong way'. Three cases of transvestism are sketchily described. There is much lively writing; the size of the posterior of the Empress Elizabeth of Russia is commented upon and the author describes George Sand as vaguely resembling a horse, presumably assuming this to be evidence of her low femininity.

H.W.

DENTAL CARIES

The Problem of Dental Caries and the Fluoridation of Public Water Supplies. By Douw G. Steyn, B.Sc., Dr. Med. Vet., D.V.Sc. Pp. 208. 4 photographs. 45s. Johannesburg: Die Voortrekkerpers, Bpk. 1958.

The view has been held for many years that, among other factors, fluorides are important in the prevention of tooth decay, although there is contrary evidence that fluorine is not absolutely essential in normal teeth (and bone) metabolism and that it is not the only element in drinking water responsible for the resistance of teeth to caries.

The topical application of fluorides to the teeth of children by trained personnel appears to be one way of using fluorine to prevent tooth decay. The fluoridation of public water supplies has been accepted as a safe and effective method for reducing the prevalence of dental caries by the American Public Health Association, the United States Public Health Service, the American Dental Association, and the American Medical Association. There are, however, many dentists, doctors, and other workers who are not in favour of this method of combatting tooth decay.

Professor Steyn, who has for a number of years investigated this problem both in the field and in the laboratory, has performed a useful service in publishing a well-documented and detailed review of the literature dealing with tooth decay. In this work he considers various nutritional aspects and theories and not only the question of fluorine. As far as fluorine is concerned he concludes that, with other measures for the prevention of caries, the topical application of stannous fluoride should be used. He also presents arguments as to why the artificial fluoridation of public water supplies should not be recommended. He stresses the possible danger of the chronic toxicity of fluorine.

N.S.

HARTNEKROSE

The Chemical Prevention of Cardiac Necroses. Deur Hans Selye, M.D., Ph.D., D.Sc. Pp. ix+235. 20 afbeeldings. $7.50. New York: The Ronald Press Company. 1958.

Selye se uitgangspunt is nog steeds die begrip van 'n algemene aanpassingsindroom teen verskillende stressors en die gevolge van oorwerking van die aanpassingsmeganisme. Deur middel van hierdie werk probeer hy 'n verklaring vind vir die hartnekroses as die eindpatologiese verskynsel van 'n groot aantal uiteenlopende etiologiese faktore, soos dié wat volg op toediening van adrenalien, digitalis, vitamine D, of na inspanning, met lae kalium dieet, non-spesifieke miokarditis, Fiedler se miokarditis en selfs dié wat volg op infeksies, en ook moontlikerwyse die kardiale infarksie by die mens.

Eksperimenteel word daar tasbare bewyse gelewer vir die ontstaan van nekrose by die rot-hart as gevolg van sensitisering deur sterolêdes, en by uitstek die gemengde gluko-mineralokortikoïedes, en hier word 2a-metiel-9a-chlorokortisol gebruik en daarna die toediening van verskillende soorte natriumsoute. Die mees kragtige hiervan is natriumfosfate, sulfate en perchlorate. Die katioon sowel as die anioon is in die opsig van belang.

Van ewe groot betekenis is die verbasende vermoë eksperimenteel gevind vir sekere soute om die gesensitiseerde dier te beskerm teen die nekrotiese verskynsels. Hier is kaliumchloried en magnesiumchloried die aktiefste. Die interessante voorstel word gemaak dat hierdie soute ook moontlikerwyse kan beskerm teen die infarksies en nekrotiserende toestande by siekteverskynsels in die mens.

Die geheel is interessante leesstof. Die beskouings is nuut. 'n Mens voel egter dat te veel aaneengeskakel word, en dat dit onwaarskynlik is dat sulke uiteenlopende toestande net deur een onderliggende gemeenskaplike meganisme sal ontstaan.

A.J.B.

CORRESPONDENCE : BRIEWERUBRIEK

HYPOFIBRINOGENAEMIA IN OBSTETRICS

To the Editor: In the *Journal* of 14 February 1959 Dr. E. L. Trott[1] states: 'One must remember to give 10 c.c. of 10% calcium lactate for every 2,000 c.c. of blood administered, to counter the anticoagulant effect of sodium citrate.'

May I quote Martindale[2] in *The Extra Pharmacopoeia*, under Sodii Citras: 'Although an anti-coagulant *in vitro*, it accelerates coagulation when injected intravenously as a 5 to 30% w/v solution.'

C. A. van Rooyen

Serowe
Bechuanaland Protectorate
20 February 1959

1. Trott, E. L. (1959): S. Afr. Med. J., 33, 134.
2. Martindale, W. (1952): *The Extra Pharmacopoeia*, Vol I, 23rd ed. London: Pharmaceutical Press.

SOCIAL COLUMNS AND ETHICAL PROCEDURE

To the Editor: Within the past week I received a pamphlet from the Medical Association, fully detailing desirable ethical procedure. *Inter alia*, it was mentioned that it is, quite rightly, undesirable that our members should have their movements publicized in the social columns of the newspapers.

Isn't it peculiar how frequently one sees the movements of members of the South African Medical and Dental Council publicized in the social columns?

Sauce for the Goose

Johannesburg
28 February 1959

ELECTROENCEPHALOGRAPHIC SOCIETY

To the Editor: It is our intention to form an electroencephalographic society in South Africa which would ultimately be affiliated to the International Federation for Electroencephalography and Clinical Neurophysiology.

We invite suitably qualified persons in the fields of electroencephalography and neurophysiology to contact us with a view to arranging an inaugural meeting.

A. C. Munday-Castle
G. K. Nelson

National Institute for Personnel Research (C.S.I.R.)
P.O. Box 10319
Johannesburg

Baragwanath Hospital — H. E. Reef
Johannesburg
28 February 1959

DIE KUX-OPERASIE

Aan die Redakteur: Wat gaan op Ottosdal aan? Verskeie pasiënte vra of hulle daarheen moet gaan om 'n senuwee te laat afsny om sodoende van hul asma, maagsere ens., ontslae te raak.

Wat is die resultate en prognose van sulke operasies en bestaan daar enige kontroles of opvolging van sulke gevalle?

6 Januarie 1959. *Plattelandse Familiedokter*

DIE KUX-OPERASIE

Aan die Redakteur: Dit begin al meer gebeur dat algemene praktisyns vagotomies en simpatikotomies uitvoer op pasiënte vir allerhande kwale en pyne.

Ek beskou myself as 'n absolute leek op hierdie gebied aangesien ek niks van dié chirurgiese ingreep weet nie. Die chirurge en interniste met wie ek oor die saak gesels, is ook blykbaar baie krities daarteen ingestel.

My groot klagte is dat dit skyn asof hierdie modifikasie van die Oostenrykse operasie nogal geneig kan wees om selfs in ons ‚onbesproke' beroep, 'n mate van ongelyke kompetisie te veroorsaak.

Ek is seker dat daar ook ander lede van ons Vereniging is wat graag u houding, en desnoods die Mediese Raad se houding in dié opsig sal wil verneem, veral aangesien die lekepers dié wonderwerke begin uitbasuin.

M. C. J. van Rensburg

Posbus 281
Rustenburg
7 Februarie 1959

[Ons publiseer aanstaande week 'n inleidingsartikel oor die sogenaamde Kux-operasie.—*Redakteur.*]

EMPIRE PARALYMPIC GAMES

To the Editor: I am enclosing a letter which I received from the Surgeon-to-Paraplegic Unit of the Royal Perth Hospital of Australia.

Paraplegics of the British Empire are invited to participate in sporting events to be held in Perth in 1962. Such events are held regularly in the large paraplegic units throughout the world but this, I believe, is a first venture to arrange competitions beyond national confines.

This should stimulate interest of paraplegics in achievements of others similarly afflicted. It would show the world what rehabilitation can do and of what paraplegics are capable.

At present it is unlikely that South Africa could send any teams, but perhaps there are some individuals who could participate. If sufficient interest is stirred in this project, a full-scale paraplegic centre could result.

A. Gonski, F.R.C.S.

Department of Neurosurgery
Groote Schuur Hospital
Observatory, Cape
3 March 1959

Dear Mr. Gonski,

As you are already aware the British Empire Games will be held here in Perth, Western Australia in 1962. I have decided to arrange for an Empire Paralympic Games at the same time, either running in direct conjunction with the Empire Games if this is possible, or as a separate sporting event.

I have no doubt that there would be a great interest in this in Australia, and particularly in Western Australia. Before making any final decision on this matter I would be most interested to know if a paraplegic team or individual sportsmen from Cape Town would be able to come to a sports meeting of this type. I know there would be no difficulty as far as accommodation is concerned for the visiting sportsmen and/or sportswomen.

We have planned to enlarge our sports field in the near future to cope with such an event. I do hope this will receive your support as it could be a tremendous asset to paraplegics throughout the world.

I have been promised all possible assistance by the Empire Games Committee in this State for facilities that may become necessary, even if the undertaking should prove to be a separate event.

We, here in Western Australia, and I am speaking for the people of Western Australia interested in paraplegic sport, are particularly anxious to act as hosts for an event such as this, and I would be most interested to have your comments on the matter before going ahead with arrangements.

G. M. Bedbrook
Surgeon-to-Paraplegic Unit
Royal Perth Hospital
Western Australia

BASAL-CELL CARCINOGENESIS

To the Editor: I hasten to reply to Dr. Findlay's courteous and detailed letter and to express my admiration for the facility with which he has summarized the theory I have propounded. Let me state at the outset that, because of my lamentable prolixity, I required almost 11 pages of your *Journal* to put forward this theory[1-3] which Dr. Findlay has so ably condensed into 3 lines.

But, Sir, nowhere have I claimed originality for this theory, whose sources are plainly set forth in the list of references.[3] To suggest, as Dr. Findlay does, 'the theory of irradiated sterols as a factor in skin cancer is not the brainchild of the Cape Town Clinic' is to tilt at a self-erected windmill; we have never made any such statement.

Nevertheless, our theory that basal-cell carcinoma as opposed to squamous epithelioma originates in a skin appendage—specifically the sebaceous glands—is, we think, a new concept. Ultraviolet light acting on the surface lipids may well cause carcinogens to appear in them, as Dr. Findlay has so ably pointed out, but, in that case, why then do not dark men show as many skin cancers as fair ones? It seems to us that our theory is not so easily overthrown as Dr. Findlay would have us believe and that, to be effective, carcinogens must be produced in the skin itself and not on its surface alone.

Also interesting is Dr. Findlay's list of polysyllabic dermatological misdiagnoses that have plagued his efforts at coming to a conclusion in the several hundred cases he has ultimately diagnosed. In Cape Town the Combined Clinic has always had the massive and loyal support of Dr. R. Lang and his colleagues of the Department of Dermatology of the University and have the good fortune to have at least one and lately two members of this Department constantly present at its meetings. This support, and the cases that are referred to us through the Skin Department, has enabled us to receive our cases after they have been filtered by a very expert team of dermatologists, so that the majority of the cases on arrival at the Clinic are already correctly diagnosed. The 1,200 odd cases we have written up[1] are without doubt the select group of a much larger series seen and assessed by our dermatologists. So we do not have to concern ourselves with the problems facing Dr. Findlay.

Dr. Findlay states, 'The existing literature on the subject may be consulted . . . to give some idea of the objections that must be overcome before the sterol theory is acceptable'. We agree. The literature has indeed been consulted, but Dr. Findlay must understand that only one point can be made and put forward with any force in any single article, else it becomes a monograph. If we like a particular theory, we put it forward and support it; Dr. Findlay cannot with justice take us to task and, because he thinks he knows of a better, asks us to put all the literature at his disposal. Reference libraries and medical information centres are available for anyone searching for this information and we would gladly put Dr. Findlay into touch with an organization that will let him have, as a free service, all the references he has found lacking in our papers.

Dr. Findlay does not like our 'practical suggestion to reduce the incidence of facial cancer' because it is apparently too simple. Our last article[4] has given examples of two cases whose cancers can be directly attributed to minor traumata and was published in support of a campaign to reduce the incidence of such traumata.

Our article *The Aetiology of Facial Cancer* is sub-headed 'A speculative and deductive survey'.[3] Dr. Findlay has clearly missed this sub-heading.

T. Schrire
17 Rugby Road
Cape Town
28 February 1959

1. Schrire, T. (1958): S. Afr. Med. J., 32, 520.
2. *Idem* (1958): *Ibid.*, 32, 776.
3. *Idem* (1958): *Ibid.*, 32, 997.
4. Schrire, T. and Sealy, R. (1959): *Ibid.*, 33, 97.

SOLID FOOD FOR BABIES

To the Editor: May I ask for a little space to comment on the article by Dr. S. Levin[1] on *Solid Food for Babies*? I do so because many people may have been distressed by it, if not reduced to a state of confusion-worse-confounded.

I agree that babies are hardy creatures. They have to be, to survive the ministrations of many types of guardian, including those who advocate giving them solids and then blandly admit that the solids are more liquid than solid. 'The fable that solid food can be given to babies soon after birth has become fact', but the fact turns out to be fiction. This is regrettable, since the picture conjured up by the article, of Dr. Levin standing at the end of the cot, tossing the odd sardine in the general direction of the neonate's gaping mouth, or feeding peas to it with a (sterilized) knife, is most intriguing. It would be easy to be facetious over the whole article, but I assume that Dr. Levin was not joking.

He does not believe that 'giving solids as such interferes with the incidence and duration of breast feeding'. Does he presume to tell us that this cult, which he admits is a distortion of fact, is an improvement on the provisions of nature which sufficed to maintain the human race for many thousands of years? If not, why interfere with the best?

In families, where the unfortunate babies cannot be breast fed, one of the major difficulties is the expense of artificial feeding and another is the work involved in preparation of the food in a proper way. Dr. Levin implies that a milk supply should be continued and the other items added. Does he really want us to advise the young parents, who are anxiously watching over their expenditure, to waste their means on the purchase of banana, chocolate, meat pastes, and that miserable but expensive vegetable —pumpkin—which will give their baby a few calories at 9 times their cost in the form of cow's milk? He proposes that the midnight feed should be stopped early—but a normal baby should never have one. His mother should be asleep then, though when the poor wight will have to arise to prepare the infant's massacred bacon-and-egg breakfast and what household instrument she should use to achieve a semi-liquid result is left to the imagination.

Many of us were trained, more than 30 years ago, to use undiluted cow's milk in infant feeding and begin mixed feeding at 5 or 6 months, and to increase the variety of foods rapidly so that by a year old the baby had a generous mixed diet containing plenty of genuine solids. There is nothing new in that. The only progress I can detect in Dr. Levin's article is the progressive distortion of the English language, not only as regards the definition of a solid but also of weaning.

It is the proper prerogative of the young to debunk their elders and, metaphorically, to teach grannie to suck eggs. But when it comes to teaching the baby to take up that exercise—remembering that, according to Dr. Levin, the contents of the baby's egg are solid—the whole proposition becomes, in that terse derogatory phrase of a generation even younger than his, something 'for the birds'.

Findlay J. Ford
Department of Child Health
University of Cape Town
Werner and Beit Laboratories
Observatory, Cape Town
24 February 1959

1. Levin, S. (1959): S. Afr. Med. J., 33, 149 (21 February).

MEDICAL SERVICES PLAN

To the Editor: I have been authorized by the Steering Committee of the Medical Services Plan to draw attention, through the Correspondence Columns of the *Journal*, to a Special Report published in the *World Medical Journal*, No. 1, Vol. 6 of 1959. The Report appears under the name of Dr. L. M. Marchand in the series 'Programs for Raising Medical Care Standards' and outlines the policies of the Medical Association of South Africa in relation to organized forms of medical practice in this country.

In this report, Dr. Marchand deals at length with Medical Benefit Societies (with closed panels and low professional remuneration) for individuals of the low income group; with Medical Aid Societies (with free choice of doctor but with reduced professional fees) for individuals of the middle income group; and with the insurance cover currently being offered by 'two leading insurance companies'. No mention whatever is made of the Medical Services Plan approved by the Federal Council and officially sponsored by the Medical Association of South Africa.

The report states that 'in a medical aid scheme members get *full* medical service, including all types of specialist services, X-ray and laboratory investigation'. This statement is misleading since it implies that medical services are available without restriction, whereas in fact almost all medical aid societies impose serious limitations of benefits—both in respect of the Society's liability for any individual claim (the balance to be repaid to the Society by the member) and of the maximum liability of the Society for services rendered to the member during any one year. In the event of major or prolonged illness the patient may therefore be left to pay the rest himself and the doctor to recover the unpaid balance of his fees (if he can) directly from the patient—on the reduced tariff prescribed.

The statement that 'the Medical Association of South Africa encourages the establishment of medical aid societies as the best method of providing a good medical benefit scheme' is similarly misleading. Since the word *best* means the most good, it would need to be explained why the Federal Council decided, with only one dissentient vote, to sponsor the Medical Services Plan which is intended to cater, *inter alia*, for this same middle income group. The explanation lies, of course, in the fact that like medical aid societies the Plan aims to give free choice of doctor, but unlike these societies, the Plan proposes to give virtually unlimited medical and hospital cover and to pay *customary* professional fees for private practice (less a small discount to meet the cost of administration, which will be a charge on the participating doctors and not on the insured members). Through the exercise of the necessary discipline which a cooperative effort such as this imposes on the participating doctors, it is visualized that a *better* service can be provided to the satisfaction of both patient and doctor.

The official policy of the World Medical Association is to encourage plans designed to preserve a free choice of doctor with minimal restriction of benefits for the patient and adequate remuneration for the doctor. Members of our profession elsewhere in the world would undoubtedly be interested and encouraged to learn of the efforts now being made by the Medical Association of South Africa to promote a scheme similar to those sponsored officially by the American and Canadian Medical Associations and operating with such outstanding success in those countries.

It is a great disappointment to the Steering Committee that the Plan, which has already aroused so much public interest and received such enthusiastic professional support in our own country, does not even rate a mention in what must be regarded as an official report by our own Association to our colleagues elsewhere in the world.

Maurice Shapiro
Chairman, Steering Committee, Medical Service Plan

5 Sasbank Building
66 Market Street
Johannesburg
3 March 1959

THE VANISHING DISEASES

To the Editor: The optimistic note sounded by the Editorial in your issue of 14 February under the title *The Vanishing Diseases*[1] is not re-echoed by an appraisal of the relevant figures in the annual reports of the Medical Officer of Health for Cape Town. It seems desirable, therefore, to put some facts before your readers in order to dispel any misconceptions that your article, unwittingly, may have prompted.

It is true that the complications of gonorrhoea and the late, serious sequelae of syphilis are becoming rare. It is true also that the *incidence* of syphilis has declined considerably. But this is *not* true of gonorrhoea. The incidence rate of gonorrhoea has actually increased, and this increase goes on from year to year.

Unfortunately, there are no published figures showing the incidence of the venereal disease in the Union as a whole. But as the facilities for treatment and the organization for following up defaulters and tracing contacts are, at least, as good in Cape Town as in any other centre, it is reasonable to assume that the statistics in Cape Town reveal the general trend.

Let us compare the incidence of gonorrhoea and syphilis in the Cape Town municipal area at a time when penicillin was not available with that when penicillin had made its impact during almost 10 years.

In the year 1944-45, that is in the pre-penicillin era, 2,651 new cases of syphilis and 873 cases of gonorrhoea were registered. During the year 1955-1956, 10 years after the introduction of penicillin, the figures were 782 for syphilis and 2,019 for gonorrhoea. So that while syphilis has diminished to a third of its former proportions, gonorrhoea has *more than doubled itself*. I have sound reasons for stating that this increase in the incidence rate of gonorrhoea persists and that the hitherto downward curve in the incidence rate for syphilis is now showing a steep rise.

This is not a local phenomenon. Contributors to European and American literature relate a similar state of affairs. And in a recent number of the *British Journal of Venereal Diseases*, December 1958, Knight gives some revealing figures. According to him there were 444 cases of male gonorrhoea in the Birmingham (England) area in 1955; in 1956 there were 858 cases and in 1957 the number had increased to 1,063. In 2 years the rate had more than doubled itself! The figures for female gonorrhoea told the same story and it is clear from Knight's article that this steep rise could not be attributed to the great influx of emigrants from the West Indies, India and Pakistan.

At the same time that this increase in the incidence rate was happening the gonococcus was causing special concern on account of its developing resistance to penicillin. True, this resistance is only relative. No strain has yet appeared which shows *absolute* resistance to penicillin. But workers in the State Serum Institute, Copenhagen, report that some strains of gonococcus require 10 times the concentration of penicillin to inhibit growth in culture than was necessary in 1944! A special world seminar was held in Tokyo in 1958 to consider this vital question, and many speakers expressed the view that our methods of treatment would have to be revised. To make matters worse, if ever a true resistance did develop (an isolated example was reported from West Germany last year!) streptomycin would not be a suitable substitute, for numerous instances of failure have been reported after using this drug.

Many French writers adopt a characteristically sceptical and cynical attitude about the curability of syphilis by penicillin alone. But I do not wish to raise this point here, particularly as your advice on treatment coincides to a large extent with the practice in Cape Town. But what is very noticeable is the number of cases of florid contagious syphilis that are being referred to general hospitals for diagnosis. The index of suspicion has fallen and I fear that your remarks may lead many practitioners to think that 'V.D.' is a thing of the past.

If one disease contributes an annual quota of round about 700 cases in one municipal area it can hardly be said to be vanishing. If another has more than doubled itself, while being assaulted continuously by millions of units of a potent drug, the qualification becomes inadmissible.

Applied to syphilis the term 'vanishing' is, at least, exaggerated; applied to gonorrhoea, it is misleading.

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1. Editorial (1959): S. Afr. Med. J., 33, 133 (14 February).